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IN THE SUPERIOR COURT OF THE STATE OF CALIFORNIA
IN AND FOR THE CITY AND COUNTY OF SAN FRANCISCO
BEFORE THE HONORABLE JOHN E. MUNTER, JUDGE
DEPARTMENT NO. 505

LESLIE J. WHITELEY AND)
LEONARD WHITELEY,)
PLAINTIFFS,)
VS.) NO. 303184
RAYBESTOS-MANHATTAN, INC., ET)
AL.,)
DEFENDANTS.)
_____)

REPORTER'S TRANSCRIPT OF PROCEEDINGS
MONDAY, JANUARY 24, 2000
(VOLUME 9, PAGES 1136-1287)

REPORTED BY: JUDITH ANN OSSA, CSR 2310
OFFICIAL REPORTER

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APPEARANCES:

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FOR THE DEFENDANT R.J. REYNOLDS TOBACCO COMPANY:
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FOR DEFENDANT METALCLAD INSULATION CORPORATION:

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MONDAY, JANUARY 24, 2000 9:45 A.M.

(THE FOLLOWING PROCEEDINGS WERE HELD IN THE COURTROOM, IN THE PRESENCE OF THE JURY)

THE COURT: GOOD MORNING, EVERYBODY.

OKAY. MS. CHABER, I THINK WE ARE READY FOR OUR NEXT WITNESS.

WHO THAT WILL BE?

MS. CHABER: AT THIS TIME, THE PLAINTIFF WOULD CALL TO THE STAND DR. NEAL BENOWITZ.

THE COURT: OKAY.

THE CLERK: COME FORWARD. PLEASE STAND RIGHT

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HERE AND RAISE YOUR RIGHT HAND.

TESTIMONY OF

NEAL BENOWITZ, M.D.,

A WITNESS CALLED ON BEHALF OF THE PLAINTIFFS, HAVING BEEN DULY SWORN, TESTIFIED AS FOLLOWS:

THE CLERK: PLEASE STATE YOUR NAME.

THE WITNESS: NEAL BENOWITZ.

THE CLERK: PLEASE SPELL YOUR LAST NAME.

THE WITNESS: BENOWITZ.

THE CLERK: IS NEAL N-E-A-L?

THE WITNESS: N-E-A-L.

THE CLERK: THANK YOU. PLEASE TAKE THE STAND.

DIRECT EXAMINATION

BY MS. CHABER: Q. GOOD MORNING, DR. BENOWITZ.

A. GOOD MORNING.

Q. COULD YOU TELL THE JURY WHAT TYPE OF DOCTOR YOU ARE.

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A. YES. I PRACTICE AT SAN FRANCISCO GENERAL HOSPITAL. I'M ON THE FULL-TIME FACULTY OF UC SAN FRANCISCO, PROFESSOR OF MEDICINE, PSYCHIATRY AND BIOPHARMACEUTICAL SCIENCES. AND CHIEF OF THE DIVISION OF CLINICAL PHARMACOLOGY AND EXPERIMENTAL THERAPEUTICS.

MY TRAINING IS INTERNAL MEDICINE, MEDICAL TOXICOLOGY AND CLINICAL PHARMACOLOGY.

MY PRACTICE THAT HAS BEEN INTERNAL MEDICINE, CARDIOVASCULAR DISEASE AND MEDICAL TOXICOLOGY.

Q. WE'RE GOING TO HAVE TO STOP AND EXPLAIN A FEW THINGS.

WHAT IS MEDICAL TOXICOLOGY?

A. THAT'S A SPECIALTY OF MEDICINE THAT DEALS WITH TOXIC OR INJURIOUS EFFECTS OF DRUGS OR CHEMICALS ON PEOPLE. IT INCLUDES EVALUATING WHAT DRUGS AND TOXINS DO TO PEOPLE AND EVALUATING INDIVIDUALS WHO HAVE TOXIC INJURIES.

Q. AND WHAT IS CLINICAL PHARMACOLOGY?

A. THAT'S A SPECIALTY OF MEDICINE THAT DEALS WITH THE ACTIONS AND APPROPRIATE USE OF DRUGS AND MEDICATIONS.

Q. OKAY. AND THEN YOU SAID YOU ALSO HAVE A CLINICAL PRACTICE?

A. YES.

Q. AND WHAT DOES YOUR CLINICAL PRACTICE CONSIST OF?

A. WELL, I SPEND ABOUT A THIRD OF MY TIME IN PATIENT CARE. I HAVE A CLINIC, WHICH IS A CARDIOLOGY CLINIC ONCE A WEEK, WHERE I SEE PATIENTS WITH A VARIETY OF CARDIOVASCULAR DISEASES.

FOR TWO MONTHS OF THE YEAR, I AM ATTENDING

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PHYSICIAN, WHICH IS THE RESPONSIBLE PHYSICIAN ON THE MEDICAL WARDS AT SAN FRANCISCO GENERAL HOSPITAL.

AND ONE MONTH IS GENERAL INTERNAL MEDICINE, WHICH IS ILLNESSES OF INTERNAL ORGANS. AND THE SECOND MONTH IS ON CARDIOVASCULAR DISEASE, WHICH IS PRIMARILY HEART DISEASE AND VASCULAR DISEASE.

I ALSO SPEND SIX WEEKS A YEAR DOING CONSULTATIONS IN OUR MEDICAL TOXICOLOGY SERVICE, WHICH BASICALLY RUNS THE CALIFORNIA POISON CONTROL CENTER FOR NORTHERN CALIFORNIA.

Q. COULD YOU DESCRIBE WHAT THAT IS.

A. THE POISON CONTROL CENTERS -- THERE IS A CALIFORNIA POISON CONTROL SYSTEM, WHICH HAS FOUR DIFFERENT CENTERS LOCATED IN DIFFERENT PARTS OF THE STATE.

THE ONE AT UC SAN FRANCISCO, SAN FRANCISCO GENERAL HOSPITAL IS RESPONSIBLE FOR NORTHERN CALIFORNIA. WE HAVE A FULL-TIME 24-HOUR STAFF OF PHARMACOLOGICALLY TRAINED

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POISON SPECIALISTS WHO HANDLE PHONE CALLS. AND THEN WE HAVE PHYSICIANS WHO ARE RESPONSIBLE TO DO CONSULTATIONS AND TO DEAL WITH VERY SICK PATIENTS ON BACKUP, WHICH IS WHAT I DO.

WE ALSO DO CONSULTATIONS AT SAN FRANCISCO GENERAL HOSPITAL OR ANY UC HOSPITALS, DIRECTLY VISITING PATIENTS WHO HAVE DRUG OVERDOSES, ENVIRONMENTAL EXPOSURES, POISON DRUG ABUSE PROBLEMS, A VARIETY OF THINGS RELATED TO DRUG-INDUCED INJURIES.

Q. AND IN THE PRACTICE THAT YOU HAVE NOW, DO YOU TEACH AT ALL?

A. YES.

Q. TELL US ABOUT THAT.

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A. WELL, AS I SAID BEFORE, MY EMPLOYER IS THE UNIVERSITY OF CALIFORNIA, AND MY MAIN FUNCTION AS A UC EMPLOYEE IS TO TEACH.

WHENEVER I SEE PATIENTS, THERE ARE INTERNS, RESIDENTS AND MEDICAL STUDENTS AROUND. AND I'M TEACHING AT THE BEDSIDE ON HOW TO TAKE CARE OF PATIENTS.

I RUN A COURSE, A MONTH-LONG COURSE FOR SENIOR MEDICAL STUDENTS IN THE APPROPRIATE USE OF MEDICATIONS. I TALK ABOUT VARIOUS DISEASE STATES, HOW TO USE MEDICATIONS, DRUG REACTIONS, ETCETERA.

I'M A COURSE ORGANIZER. I DON'T TEACH THE WHOLE THING. I TEACH SIX OR EIGHT HOURS OF THAT COURSE.

I ALSO GIVE A NUMBER OF LECTURES TO MEDICAL STUDENTS OR RESIDENTS ABOUT A VARIETY OF THINGS, BOTH CARDIOVASCULAR DISEASE, DRUGS AND SMOKING, AND HEALTH SMOKING-RELATED ISSUES, WHICH IS MY MAIN RESEARCH AREA.

Q. AND IN MENTIONING RESEARCH, YOU DO RESEARCH AS WELL AS YOUR CLINIC, YOUR TEACHING, AND THE OTHER ACTIVITIES THAT YOU'VE TOLD US ABOUT?

A. YES. BASICALLY, IN ACADEMIC MEDICINE, YOU SPEND YOUR TIME DOING THREE DIFFERENT THINGS MOSTLY. ONE IS PATIENT CARE, ONE IS TEACHING, AND A THIRD PART IS RESEARCH.

Q. AND CAN YOU DESCRIBE FOR US SOME OF THE TYPES OF RESEARCH THAT YOU'VE BEEN INVOLVED IN.

A. WELL, MOST OF MY RESEARCH SINCE PROBABLY THE EARLY 1970S HAS BEEN TO UNDERSTAND THE EFFECTS OF NICOTINE ON PEOPLE AND HOW NICOTINE MAINTAINS TOBACCO USE, WHAT IT DOES, THE ASPECTS OF NICOTINE ADDICTION, THE ASPECTS OF

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TOBACCO-RELATED ILLNESS.

AND THEN I'VE ALSO DONE RESEARCH ON SMOKING AND HEALTH POLICY ISSUES AND QUESTIONS.

SO MOST OF MY RESEARCH HAS REALLY BEEN IN PEOPLE -- OR RELATED TO PEOPLE UNDERSTANDING NICOTINE AND TOBACCO.

I'VE ALSO DONE SOME RESEARCH ON OTHER STIMULANT DRUGS. I HAVE DONE RESEARCH ON CAFFEINE TOO. I HAVE DONE RESEARCH ON COCAINE.

WHEN I STARTED MY CLINICAL PRACTICE, I SPENT A YEAR OR SO RUNNING AN OPIATE DETOXIFICATION UNIT.

SO I'VE ALSO TAUGHT ABOUT OPIATES AND DO SOME RESEARCH ON OPIATES.

Q. AND ARE YOU A FULL PROFESSOR?

A. YES.

Q. AND WHAT ARE YOU A FULL PROFESSOR IN?

A. WELL, THREE DEPARTMENTS. MEDICINE IS ONE, WHICH, AS I SAY, IS WHERE I DO MY CLINICAL ACTIVITIES.

PSYCHIATRY IS ONE, BECAUSE A LOT OF THE TEACHING AND RESEARCH THAT I DO RELATES TO EFFECTS OF DRUGS ON THE BRAIN. AND I TEACH IN THAT AREA AS WELL, BOTH ABOUT SMOKING

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AND DRUG ADDICTION AND ALSO ABOUT OTHER PSYCHOACTIVE DRUGS.
THE THIRD ONE IS BIOPHARMACEUTICAL SCIENCES, WHICH IS WITHIN THE SCHOOL OF PHARMACY. UC SAN FRANCISCO HAS DIFFERENT SCHOOLS. ONE IS THE SCHOOL OF MEDICINE, A DENTAL SCHOOL, A NURSING SCHOOL AND A SCHOOL OF PHARMACY.
AND WITHIN PHARMACY ARE THE DEPARTMENTS THAT DEAL WITH ACTIONS OF DRUGS, WHICH IS BIOPHARMACEUTICAL SCIENCES.

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SO I TEACH. I'M THE VICE CHAIRMAN OF THAT DEPARTMENT.

Q. ALTHOUGH YOU'RE A FULL PROFESSOR IN THE DEPARTMENT OF PSYCHIATRY, AS YOU'VE DESCRIBED TO US, ARE YOU A PSYCHIATRIST?

A. NO. MY TRAINING IS INTERNAL MEDICINE. IT'S NOT PSYCHIATRY.

Q. HOW DO YOU BECOME A FULL PROFESSOR IN THE DEPARTMENT OF PSYCHIATRY WITHOUT BEING A PSYCHIATRIST?

A. IT REALLY HAS TO DO WITH MY RESEARCH CONTRIBUTIONS. I'VE PUBLISHED EXTENSIVELY AND LECTURED EXTENSIVELY, RECEIVED AWARDS IN THE AREA OF ADDICTION.
AND ADDICTION IS GENERALLY TAUGHT IN DEPARTMENTS OF PSYCHIATRY, ALTHOUGH THERE IS SOME OVERLAP WITH MEDICINE. BUT MOST ADDICTION RESEARCH OCCURS WITHIN DEPARTMENTS OF PSYCHIATRY.
AND BECAUSE OF MY RESEARCH CONTRIBUTIONS, I'VE BEEN AWARDED THAT STATUS IN PSYCHIATRY AS WELL AS MEDICINE.

Q. AND YOU MENTIONED THAT YOU'VE RECEIVED SOME AWARDS OR HONORS OR DISTINCTIONS.
CAN YOU TELL US ABOUT THOSE?

A. YES. SOME OF THEM. I RECEIVED SEVERAL AWARDS FOR MY WORK ON NICOTINE AND TOBACCO. ONE, THERE IS A MAYO CLINIC DISTINGUISHED LECTURER AWARD THAT I RECEIVED SEVERAL YEARS AGO.
I RECEIVED AN OVE FERNO AWARD FOR RESEARCH ON NICOTINE. THAT'S AN INTERNATIONAL AWARD THAT COMES FROM SWEDEN.

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Q. OVE FERNO IS SOMEBODY'S NAME?

A. OVE FERNO IS THE MAN WHO FIRST DEVELOPED NICOTINE GUM MANY YEARS AGO. AND THERE'S AN AWARD SET UP IN HIS NAME BECAUSE HE WAS ONE OF PIONEERS IN STUDYING NICOTINE IN PEOPLE.
I'VE RECEIVED THE ALTON OCHSNER AWARD FROM THE AMERICAN COLLEGE OF CHEST PHYSICIANS, WHICH IS AN AWARD THAT IS GIVEN FOR OUTSTANDING ACCOMPLISHMENTS IN RESEARCH IN SMOKING AND HEALTH.

Q. LET ME ASK YOU WHO ALTON OCHSNER WAS?

A. HE WAS THE PHYSICIAN WHO WAS ONE OF THE FIRST PHYSICIANS TO DO RESEARCH ON LUNG CANCER, TO RECOGNIZE THE RELATIONSHIP BETWEEN SMOKING AND LUNG CANCER.
AND HE FOUNDED THE OCHSNER CLINIC IN NEW ORLEANS, WHICH IS ONE OF THE FOREMOST MEDICAL CLINICS IN THE COUNTRY. IT HAD BEEN NAMED IN HIS HONOR, BASICALLY.

Q. WHEN YOU SAY HE WAS ONE OF THE FIRST PEOPLE WRITING ABOUT CIGARETTE SMOKING AND DISEASE, CAN YOU GIVE US AN IDEA OF WHAT TIME FRAME YOU'RE TALKING ABOUT?

A. HE WAS EARLY IN THE CENTURY. I FORGET. 1930S, 1940S. I DON'T REMEMBER EXACTLY.
BUT PRIOR TO THIS CENTURY, OR LAST CENTURY, ACTUALLY, LUNG CANCER WAS UNUSUAL.
AND THEN, IN THE LATE PART OF THE FIRST HALF OF LAST CENTURY, LUNG CANCER RATES STARTED TO RISE AND LUNG CANCER BECAME QUITE COMMON, WHEREAS IT USED TO BE UNCOMMON.

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AND OCHSNER WAS ONE OF THE PEOPLE TO OBSERVE THAT AND ALSO MAKE THE OBSERVATION THAT CIGARETTE SMOKING WAS

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INVOLVED IN THE VAST MAJORITY OF THESE CANCERS, AND ULTIMATELY WAS A STRONG ADVOCATE FOR SMOKING -- TO STOP SMOKING, SMOKING CONTROL, CONTROL CANCER.

Q. AND THE MAYO CLINIC, CAN YOU DESCRIBE WHAT THAT AWARD WAS ABOUT?

A. WELL, EACH YEAR, THE MAYO CLINIC, OR MAYBE TWICE A YEAR, BRING IN A VISITING PHYSICIAN, PROFESSOR, WHO HAS DONE OUTSTANDING RESEARCH IN SOME AREA OF CLINICAL MEDICINE.

AND I VISITED WITH A VARIETY OF THE FACULTY THERE. I GAVE A GUEST LECTURE, GAVE A RESEARCH SEMINAR. I GOT A PLAQUE AND AWARD FOR IT.

THAT'S JUST SOMETHING WHICH THEY DO TWICE A YEAR TO HONOR PEOPLE WHO ARE DOING OUTSTANDING WORK IN SOME ASPECT OF MEDICINE.

THE AWARD IS NOT DIRECTLY RELATED TO SMOKING. IT CAN BE ANY ASPECT OF MEDICINE.

Q. FOR YOU, WHAT WAS THE GUEST LECTURE POSITION? WHAT DID YOU TALK ABOUT?

A. MY WORK HAD TO DO WITH NICOTINE ADDICTION, SMOKING AND HEALTH.

Q. CAN YOU GIVE US AN IDEA HOW MANY SCIENTIFIC MEDICAL ARTICLES YOU HAVE PUBLISHED ON THE ISSUES OF SMOKING AND HEALTH?

A. MORE THAN 200. OVERALL, I HAVE PUBLISHED 300, 350 PAPERS. THE VAST MAJORITY OF THOSE INVOLVE NICOTINE OR TOBACCO.

Q. HAVE YOU DONE ANY WORK FOR ANY GOVERNMENTAL

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AGENCIES?

A. YES.

Q. CAN YOU DESCRIBE THAT.

A. WELL, I HAVE BEEN VERY MUCH INVOLVED WITH THE U.S. SURGEON GENERAL'S REPORTS ON SMOKING AND HEALTH. I CONTRIBUTED TO A NUMBER OF THEM.

I WAS ONE OF THE SENIOR SCIENTIFIC EDITORS OF THE 1988 SURGEON GENERAL'S REPORT ON NICOTINE ADDICTION.

I ALSO WAS INVOLVED IN REPORTS, IN WRITING SECTIONS ON ENVIRONMENTAL TOBACCO SMOKE, ON SMOKELESS TOBACCO, ON ETHNIC DIFFERENCES, GENDER DIFFERENCES. I'VE WRITTEN AND CONSULTED ON A NUMBER OF THOSE REPORTS.

I WAS ON THE SCIENTIFIC ADVISORY BOARD OF THE ENVIRONMENTAL PROTECTION AGENCY WHEN THEY REVIEWED ENVIRONMENTAL TOBACCO SMOKE AS A HEALTH HAZARD.

I WAS A CONSULTANT TO THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION, OR OSHA, IN THEIR HEARINGS ON WHETHER THERE SHOULD BE INDOOR REGULATIONS OF TOBACCO USE IN THE WORKPLACE.

AND I'VE ALSO CONSULTED WITH THE NATIONAL INSTITUTES OF HEALTH ON A NUMBER OF THEIR PANELS. I'M INVOLVED IN DRUGS OR GRANT REVIEW.

AND FINALLY, I'VE CONSULTED WITH THE FOOD AND DRUG ADMINISTRATION. I'VE TESTIFIED TO THEIR ADVISORY COMMITTEES ABOUT THE PHARMACOLOGY OF NICOTINE AND NICOTINE ADDICTION.

I CONSULTED WITH DR. KESSLER, WHO WAS FORMER HEAD OF THE FOOD AND DRUG ADMINISTRATION, AS WELL AS WHEN HE HAD

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QUESTIONS ABOUT NICOTINE AND PHARMACOLOGY, WE WOULD HAVE CONVERSATIONS.

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I MET WITH HIM ONCE TO TALK ABOUT -- TO EXPLAIN WHAT NICOTINE DOES.

Q. AND YOU TALKED ABOUT YOUR OWN RESEARCH, BUT HAVE YOU BEEN WHAT'S CALLED A PEER REVIEWER OF OTHER PEOPLE'S RESEARCH?

I THINK THE JURY HEARD ABOUT WHAT A PEER REVIEWER IS LAST WEEK.

A. YES.

Q. CAN YOU GIVE US AN IDEA OF THE TYPES OF WORK YOU WOULD PEER-REVIEW, AND THE APPROXIMATE NUMBERS.

A. I DO THAT QUITE OFTEN. SEVERAL ARTICLES A MONTH.

AND I HAVE PEER-REVIEWED FOR -- I'M NOT SURE -- PROBABLY 100 DIFFERENT JOURNALS.

THE VAST MAJORITY OF THE REVIEWING THAT I DO RELATES, AGAIN, TO NICOTINE, TOBACCO HEALTH ISSUES, SOME OF IT TO OTHER DRUGS, CARDIOVASCULAR DISEASE, BUT I WOULD ESTIMATE 75 PERCENT OR MORE RELATE TO NICOTINE OR TOBACCO.

Q. AND I BELIEVE YOU SAID YOU WERE SCIENTIFIC OR SENIOR SCIENTIFIC EDITOR OF THE 1988 SURGEON GENERAL'S REPORT?

A. YES.

Q. AND WE'VE HEARD A BIT ABOUT THAT. HOW MANY SENIOR EDITORS WERE THERE?

A. THERE WERE FOUR OF US.

Q. AND WHAT WAS YOUR ROLE?

A. WELL, THE FOUR OF US WERE RESPONSIBLE -- WELL, I

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SHOULD STEP BACK AND EXPLAIN HOW THE SURGEON GENERAL'S REPORTS ARE PUT TOGETHER.

WE WANTED TO TALK ABOUT THE ISSUE OF WHY PEOPLE SMOKE TOBACCO. THAT WAS THE GENERAL THEME AT THE BEGINNING.

AND WE IDENTIFIED A NUMBER OF AREAS THAT SHOULD BE ADDRESSED IN UNDERSTANDING WHY PEOPLE SMOKE TOBACCO. WE IDENTIFIED EXPERTS AROUND THE COUNTRY OR AROUND THE WORLD TO DO PRELIMINARY DRAFT WRITINGS ON DIFFERENT TOPICS.

ON SOME OTHER SUBTOPICS, THOSE PEOPLE WERE CONTACTED. REPORTS WERE OBTAINED FROM THOSE PEOPLE.

THE EDITORS, WE DID SOME WRITING OURSELVES IN AREAS OF OUR EXPERTISE.

WE THEN INTEGRATED AND EDITED -- INTEGRATED THE VARIOUS REPORTS INTO A SINGLE DOCUMENT.

WE STARTED WHERE EACH OF US WOULD DO ONE SECTION, AND THEN EXCHANGE SECTIONS, AND BASICALLY EDITED ONE DOCUMENT, AND THEN WOULD SEND THAT DOCUMENT OUT TO A LOT OF OTHER EXPERTS FOR THEIR COMMENTS, INCORPORATE THE COMMENTS IN THE SECOND REVIEW, REDRAFT ANOTHER ONE, SEND IT OUT TO OTHER EXPERTS, DRAFT IT FOR THE THIRD TIME.

AND FINALLY, IT WENT TO SURGEON GENERAL EVERETT KOOP FOR HIS COMMENTS. HE HAD SOME COMMENTS, AND THEN IT WAS FINALIZED.

Q. RON, DR. RON DAVIS WAS INVOLVED IN THAT?

A. YES. HE WAS DIRECTOR OF THE OFFICE OF SMOKING AND HEALTH. AND HE WAS THE ONE WHO PROVIDED SUPPORT FOR US IN TERMS OF GETTING ARTICLES TYPED IN PREPARATION OF THE

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MANUSCRIPT.

HE CONSULTED WITH US AT VARIOUS TIMES ABOUT THE PROCESS. HE ARRANGED MEETINGS FOR US WHERE WE SAT AROUND AND TALKED ABOUT WHAT WAS GOING ON.

SO HE WAS INTIMATELY INVOLVED FROM THE VERY BEGINNING.

Q. AND DR. DAVID BURNS WAS ALSO INVOLVED TO SOME

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EXTENT?
A. HE WASN'T SO MUCH INVOLVED IN THAT REPORT. HE WAS ONE OF OUR REVIEWERS, ONE OF OUR WHAT WE CALLED VIP REVIEWERS. SO WHEN THE DOCUMENT WAS FINISHED IN THE FIRST DRAFT, IT WENT TO HIM FOR HIS COMMENTS.

BUT DR. BURNS HAS BEEN RESPONSIBLE OR THE CHIEF PERSON FOR MANY OTHER REPORTS AS WELL. HE'S BEEN INVOLVED IN THE SURGEON GENERAL'S OFFICE FOR YEARS AND YEARS.

Q. AND DOES DR. BURNS HAVE -- WHAT IS DR. BURNS' REPUTATION IN THE SCIENTIFIC COMMUNITY?

A. EXTREMELY HIGH, ESPECIALLY IN SMOKING AND HEALTH. HE'S A CHEST PHYSICIAN, A CRITICAL CARE PHYSICIAN, WHO HAS REALLY DEVOTED MOST OF HIS CAREER TO UNDERSTANDING SMOKING AND ITS CONSEQUENCES.

HE DOES A LOT OF EPIDEMIOLOGY AS WELL AS PRIMARY PATIENT CARE IN CHEST DISEASE, AND HAS BEEN INVOLVED IN THE FIELD IN TERMS OF SURGEON GENERAL'S REPORTS AND POLICY LONGER THAN I HAVE PROBABLY FOR 30 YEARS.

Q. AND WHAT ABOUT DR. DAVIS? WHAT IS HIS REPUTATION IN THE SCIENTIFIC COMMUNITY?

A. HE'S VERY WELL KNOWN AND VERY WELL RESPECTED AS

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WELL.

Q. NOW, YOU'VE WRITTEN SOME BOOKS?

A. I EDITED -- I WAS THE EDITOR OF A BOOK. I HAVEN'T WRITTEN THE WHOLE BOOK, BUT I EDITED ONE BOOK ON NICOTINE SAFETY AND TOXICITY.

Q. AND THAT'S A BOOK THAT'S JUST RECENTLY COME OUT?

A. ABOUT A YEAR AGO.

Q. AND WHAT WAS YOUR INVOLVEMENT AS AN EDITOR? CAN YOU DESCRIBE THAT.

A. WELL, IT CAME OUT OF A CONFERENCE WHICH I ORGANIZED A COUPLE OF YEARS AGO, WHERE A NUMBER OF EXPERTS WERE INVITED TO TALK ABOUT DIFFERENT ASPECTS OF NICOTINE SAFETY AND HEALTH.

THE QUESTIONS THAT LED TO THE CONFERENCE WERE REALLY QUESTIONS, SUCH AS, ASIDE FROM THE ADDICTION QUESTION, DOES NICOTINE CONTRIBUTE TO THE HARMFUL EFFECTS OF SMOKING? ARE NICOTINE MEDICATIONS SAFE?

THAT'S IMPORTANT, BOTH FOR TREATING SMOKERS AND ALSO BECAUSE NICOTINE IS BEING RESEARCHED AS A MEDICATION FOR OTHER DISEASES, EVEN IN NONSMOKERS.

Q. WHAT DO YOU MEAN?

A. WELL, NICOTINE WORKS IN THE BODY IN SUCH A WAY THAT IT COULD POTENTIALLY BE USEFUL IN A VARIETY OF DISEASES. IT RELIEVES PAIN. IT CAN HAVE EFFECTS ON DEPRESSION. IT HAS EFFECTS ON COLITIS, A BUNCH OF THINGS; ALZHEIMER'S DISEASE.

IT'S BEEN EVALUATED. NICOTINE IS A DRUG. SOMETHING LIKE NICOTINE IS LIKELY TO BE DEVELOPED AS

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SOMETHING YOU BUY IN A DRUGSTORE TO TREAT A DISEASE IN THE FUTURE.

SO PART OF THE QUESTION IN THIS BOOK WAS: IS NICOTINE SAFE?

SO A NUMBER OF PEOPLE SPOKE AND SUBMITTED MANUSCRIPTS. AND THEN I TOOK THOSE MANUSCRIPTS. I EDITED THEM SO THAT THE BOOK FLOWED TOGETHER LIKE A SINGLE PIECE. I WROTE SEVERAL CHAPTERS MYSELF AND THEN IT GOT PUBLISHED.

Q. DO YOU KNOW IF THAT BOOK IS BEING USED IN ANY MEDICAL SCHOOLS?

A. WELL, IT'S AVAILABLE IN ALL MEDICAL SCHOOLS. AND ANYONE, CERTAINLY, WHO IS INTERESTED IN THE QUESTION OF WHAT

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DOES NICOTINE DO TO THE BODY WOULD WANT TO TAKE A LOOK AT IT, BECAUSE THERE'S INFORMATION THERE THAT IS NOT AVAILABLE ELSEWHERE.

Q. CAN YOU GIVE US AN IDEA -- BESIDES WHAT NICOTINE CAN DO TO THE BODY, WE'VE TALKED GENERALLY THAT YOU'VE WRITTEN A LOT OF ARTICLES AND THAT YOUR RESEARCH AND YOUR STUDY, YOUR LECTURES AND SO FORTH, ARE ON NICOTINE AND SMOKING AND HEALTH.

CAN YOU GIVE US SOME TOPICS WITHIN THAT TO GIVE US AN IDEA OF THE BREADTH AND THE EXTENT OF YOUR EXPERIENCE.

A. SURE. WE, OR MY LABORATORY GROUP WAS ONE OF THE FIRST ONES TO GIVE NICOTINE IN KNOWN AMOUNTS TO PEOPLE TO FIND OUT HOW THE BODY HANDLES IT, HOW LONG NICOTINE STAYS IN THE BODY, WHERE IT GOES IN THE BODY, WHAT THE EFFECTS ARE OF NICOTINE OVER TIME. THE QUESTION OF TOLERANCE, WHICH REFERS

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TO THE FACT THAT WHEN YOU HAVE A DRUG IN THE BODY, AND ITS EFFECT GETS LESS AND LESS OVER TIME, EVEN HAVING THE SAME AMOUNT IN THE BODY.

THAT'S WHAT'S CALLED TOLERANCE, SOMETHING WHICH IS SEEN WITH MANY PSYCHOACTIVE DRUGS AND ADDICTING DRUGS. SO WE STUDIED THAT EXTENSIVELY.

WE STUDIED THE ISSUE OF HOW CAREFULLY SMOKERS CONTROL NICOTINE INTAKE. THEY SWITCH TO DIFFERENT KINDS OF CIGARETTES.

WHEN THE BODY METABOLISM CHANGES OR INCREASES, WHAT THEY DO TO REGULATE THE NICOTINE INTAKE. WE SEE THAT NICOTINE INTAKE IS PRESENT CONSISTENTLY FOR A PERSON FROM DAY TO DAY WHEN THEY'RE SMOKERS.

WE LEARNED THAT PEOPLE SMOKING CIGARETTES THAT ARE HIGH-YIELD, ACCORDING TO MACHINE TESTING, OR LOW-YIELD, TAKE IN JUST ABOUT THE SAME AMOUNT OF NICOTINE AND CARBON MONOXIDE AND TAR.

WE DID BOTH CROSSOVER STUDIES OF VOLUNTEERS, ONE TO THE OTHER, AND WE ALSO DID POPULATION STUDIES, JUST GETTING SAMPLES OF BLOOD OR SALIVA FROM SMOKERS SMOKING DIFFERENT KINDS OF CIGARETTES, AND SHOWED THAT IT REALLY DIDN'T MATTER VERY MUCH IF THEY ARE SMOKING HIGH-YIELD OR LOW-YIELD CIGARETTES. THEY WERE TAKING IN JUST ABOUT THE SAME AMOUNT OF NICOTINE, DIFFERENT TOXINS.

WE DID A LOT OF WORK ON SMOKELESS TOBACCO, CHEWING TOBACCO, TO UNDERSTAND HOW MUCH NICOTINE WAS ABSORBED TO UNDERSTAND THE EFFECTS IN PEOPLE. WE DID A NUMBER OF STUDIES ON NICOTINE MEDICATIONS, NICOTINE GUM,

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NICOTINE PATCHES, NICOTINE NASAL SPRAY, TO UNDERSTAND WHAT IT DID, MOST OF IT TO HELP THOSE DRUGS GET REGISTERED FOR USE AS DRUGS TO HELP PEOPLE STOP SMOKING.

Q. WHAT DID YOU MEAN, "TO GET REGISTERED FOR USE"?

A. WELL, THE FOOD AND DRUG ADMINISTRATION, BEFORE IT APPROVES A DRUG FOR MARKETING, REQUIRES THAT A LOT OF INFORMATION BE AVAILABLE ON LEVELS IN THE BODY, WHAT IT DOES TO THE BODY, VARIATIONS FROM PERSON TO PERSON.

AND SO WE DID A LOT OF WORK JUST QUANTITATING EXPOSURE, LOOKING AT EFFECTS OF THESE THINGS IN VOLUNTEERS.

AND OUR DATA BECAME PART OF THE SUBMISSION THAT DIFFERENT PHARMACEUTICAL COMPANIES GAVE TO THE FOOD AND DRUG ADMINISTRATION FOR APPROVAL.

Q. SO THE CIGARETTE MANUFACTURERS DON'T DO THE SAME THING? THEY DON'T GIVE THAT INFORMATION TO THE GOVERNMENT FOR APPROVAL?

A. NO, THEY DO NOT.

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Q. GO ON. I DIDN'T MEAN TO INTERRUPT.
YOU WERE TALKING ABOUT THE MORE SPECIFIC AREAS OF RESEARCH.
A. WE'VE HAVE DONE A LOT OF WORK IN RECENT YEARS LOOKING AT INDIVIDUAL DIFFERENCES IN SMOKING AND NICOTINE EXPOSURE.
WE HAVE FOUND SUBSTANTIAL DIFFERENCES BETWEEN BLACKS AND WHITES. FOR EXAMPLE, WE'VE DONE SOME STUDIES RECENTLY LOOKING AT CHINESE, HISPANICS AND WHITE DIFFERENCES IN SMOKING. AND IT'S STILL ONGOING WITH A LOT OF THAT RESEARCH.

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I'VE ALSO BEEN INTERESTED IN THE QUESTION OF POLICIES INVOLVING NICOTINE AS A DRUG THAT MIGHT BE USEFUL WAYS TO REDUCE THE SMOKING AND HEALTH PROBLEM.
I HAVE PUBLISHED ON THE QUESTION OF NICOTINE REDUCTION STRATEGY, WHICH WOULD BE TO MANDATE A LOWERING OF THE NICOTINE CONTENTS OF CIGARETTES.
SO IS NOT LIKE THE MARKETED LOW-YIELD CIGARETTES, WHICH HAVE LOTS OF NICOTINE IN THEM. BUT CIGARETTES WILL BE MANDATED TO HAVE LOWER AND LOWER NICOTINE LEVELS, SO THAT PEOPLE WOULDN'T BECOME ADDICTED TO THEM. SO IF THEY SMOKE, THEY COULD STOP, IF THEY WANTED TO STOP.
SO I'VE WRITTEN ABOUT THAT AND AM CURRENTLY DOING RESEARCH ON THAT QUESTION AS WELL.
THERE ARE PROBABLY OTHER AREAS, BUT THOSE ARE, I THINK, THE MAIN ONES.
Q. AND WHEN YOU TALKED ABOUT YOUR CLINICAL PRACTICE, YOU TALKED ABOUT SPECIFICALLY IN RELATION TO HEART DISEASE, THOUGH YOU DO OTHER THINGS AS WELL IN THE CLINICAL PRACTICE; CORRECT?
A. YES.
Q. CAN YOU GIVE US AN IDEA OF WHETHER OR NOT, IN YOUR CARDIAC PRACTICE, IN YOUR SEEING HEART PATIENTS, WHETHER THE ISSUES OF SMOKING AND HEALTH ARE INVOLVED THERE AS WELL?
A. VERY MUCH SO. CIGARETTE SMOKING IS A MAJOR CAUSE OF CORONARY HEART DISEASE. AND I WOULD SAY, IF THERE'S A SINGLE DIAGNOSIS THAT'S MOST COMMON, IT'S CORONARY HEART DISEASE. PEOPLE HAVE A HEART ATTACK OR HAVE ANGINA, HAVE

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HIGH CHOLESTEROL, HAVE HIGH BLOOD PRESSURE.
AND SMOKING IS A MAJOR FACTOR IN CAUSATION OF HEART DISEASE. AND MANY OF MY PATIENTS ARE SMOKERS, AND I HAVE TO DEAL WITH THEM, TO COUNSEL THEM TO STOP SMOKING, TO TRY TO HELP THEM STOP SMOKING.
AND THAT'S, I THINK, ONE OF THE MOST IMPORTANT THINGS I CAN DO FOR MY PATIENTS WITH HEART DISEASE.
Q. AND IN THE COURSE OF DOING THAT WITH YOUR PATIENTS WITH HEART DISEASE, DO YOU GET INVOLVED IN LOOKING AT ISSUES OF THE EASE OR THE DIFFICULTY OF QUITTING SMOKING, FOR EXAMPLE?
A. ABSOLUTELY, BECAUSE WHEN I TALK TO PATIENTS WHO SMOKE WHO HAVE CORONARY DISEASE, I HAVE TO TELL THEM THAT, "YOU ARE INCREASING YOUR RISK OF A HEART ATTACK TWOFOLD. YOU ARE INCREASING DROPPING DEAD SUDDENLY AT LEAST FOURFOLD." IF THEY HAVE BYPASS GRAFTS, "YOU ARE INCREASING BYPASS GRAFTS CLOSING UP TREMENDOUSLY."
OR IF THEY'D HAD ANGIOPLASTY, WHICH IS BASICALLY OPENING UP BLOOD VESSELS WITH BALLOONS, WHICH THEY DO SOMETIMES INSTEAD OF SURGERY, THE CHANCES OF THAT CLOSING UP AGAIN IS MUCH GREATER IF YOU'RE A SMOKER.
SO I'M ALWAYS COUNSELING THEM. I SAY, "SMOKING

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IS A HUGE RISK PROBLEM, A HUGE PROBLEM FOR YOU, AND YOU HAVE TO STOP SMOKING."

AND ALMOST INVARIABLY OR INVARIABLY, PEOPLE SAID, "I'D LIKE TO STOP SMOKING," BUT SOME PEOPLE SAID, "OKAY. I CAN'T. I TRIED LOTS OF TIMES. I CAN'T STOP SMOKING."

ONE PERSON JUST SAID, "I FEEL SO BAD WHEN I STOP

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SMOKING, I'D RATHER DIE, BECAUSE I JUST CANNOT GIVE UP SMOKING. I CAN'T THINK. I CAN'T CONCENTRATE. I CAN'T FOCUS. I FEEL TERRIBLE."

WHEN YOU'RE DEALING WITH PEOPLE LIKE THAT, IT'S AN ABSOLUTE, YOU KNOW, EXTREME OF ADDICTION. PEOPLE WITH HEART DISEASE WHO KEEP ON SMOKING -- MOST ADDICTS, ALTHOUGH THEY KNOW THEY ARE KILLING THEMSELVES, THEY DON'T WANT TO DIE. THEY ARE NOT SUICIDAL. THEY ARE RATIONAL PEOPLE WHO TAKE MEDICINES AND COME AND VISIT, BUT THEY CAN'T STOP SMOKING. YOU SPEND A LOT OF TIME WITH THIS ISSUE.

Q. HAVE YOU FOUND THAT THE PEOPLE -- WHEN YOU FIRST BEGIN COUNSELING THEM ABOUT THESE RISKS OF FURTHER HEART DISEASE OR THE EXTENT OR LEVEL OF THEIR RISK OF HAVING THINGS LIKE VALVES CLOSE UP AND SO FORTH, THAT PEOPLE THAT YOU'RE COUNSELING ARE GENERALLY AWARE OF THIS?

A. OF THE RISKS?

Q. YES.

A. ABSOLUTELY. I TELL THEM EVERY VISIT.

Q. I MEAN, BEFORE YOU START COUNSELING THEM.

A. WELL, THEY'RE AWARE IN GENERAL TERMS. MOST SMOKERS KNOW THAT SMOKING IS NOT GOOD FOR YOU, BUT SMOKERS RARELY KNOW THE SPECIFICS OF HOW BAD IT IS FOR YOU, AND THAT'S WHAT I TELL THEM.

Q. AND EVEN WITH ALL YOUR TELLING THEM ABOUT IT AND CATASTROPHIC EVENTS HAPPENING TO THESE PEOPLE, MANY OF THEM ARE STILL UNABLE TO QUIT SMOKING?

A. YES.

Q. AND THAT'S IN SPITE OF WANTING TO?

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A. YES.

Q. WE'VE BEEN TALKING ABOUT YOUR INVOLVEMENT WITH NICOTINE AND WITH ADDICTION.

CAN YOU TELL US HOW YOU WOULD DEFINE "ADDICTION"?

A. IN THE SIMPLEST TERMS, IT REALLY IS LOSS OF CONTROL OF DRUG USE.

NOW, TO BE MORE COMPLETE ABOUT IT, IT HAS TO BE A PSYCHOACTIVE DRUG. IT HAS TO AFFECT THE BRAIN. IT'S GOT TO BE A DRUG THAT PEOPLE -- A DRUG THAT WAS CALLED REINFORCING. SO IT'S A DRUG THAT DOES SOMETHING TO YOU WHEN YOU TAKE IT.

AN EXAMPLE THERE, FOR EXAMPLE, IS IF SOMEONE IS DRINKING DECAF COFFEE, THERE'S NO CAFFEINE, THERE'S NOTHING REINFORCING IT. SO YOU SAY YOU CERTAINLY WOULDN'T CALL THAT CAFFEINE ADDICTION.

BUT THE BOTTOM LINE FOR ADDICTION REALLY, AND I WOULD SAY THE WAY I USE "ADDICTION," IT'S THE SAME AS DEPENDENCE. I USE BOTH OF THEM INTERCHANGEABLY.

IT REALLY IS LOSS OF CONTROL OF DRUG USE, WHICH MEANS THAT WHEN YOU WANT TO QUIT, WHEN YOU NEED TO QUIT, IT'S DIFFICULT, SOMETIMES IMPOSSIBLE, BUT IT'S DIFFICULT.

AND OFTEN, YOU END UP USING THE DRUG OR SUBSTANCE MUCH LONGER THAN YOU WOULD LIKE TO.

Q. YOU SAID THAT YOU USE "DEPENDENCE" AND "ADDICTION" AS INTERCHANGEABLE TERMS.

CAN YOU TELL US WHY THAT IS, WHY YOU MAKE NO DISTINCTION?

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A. "DEPENDENCE" IS THE TERM THAT HAD BEEN USED IN

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SCIENTIFIC PUBLICATIONS BY THE WORLD HEALTH ORGANIZATION. A LOT OF SCIENTISTS LIKE THAT TERM BECAUSE IT REALLY RELATES TO SPECIFIC BIOLOGICAL THEORIES OF TOLERANCE AND WITHDRAWAL AND REINFORCEMENT.

"ADDICTION" WAS A PROBLEM BECAUSE, ORIGINALLY, ADDICTION WAS CONNECTED TO CRAZED HEROIN ADDICTS OR CRAZED COCAINE ADDICTS THAT WERE ANTISOCIAL, WOULD BE STEALING AND ROBBING AND DOING HORRIBLE THINGS, WOULD BE A HUGE BURDEN ON SOCIETY; AMORAL OR IMMORAL BEHAVIOR. SO "ADDICTION" IN THE EARLY LAST CENTURY HAD A LOT OF MORAL CONNOTATIONS TO IT.

HOWEVER, OVER TIME -- AND THIS IS SOMETHING WE TALKED ABOUT WITH THE 1988 SURGEON GENERAL'S REPORT, WHERE WE DECIDED TO CALL IT "NICOTINE ADDICTION" INSTEAD OF "NICOTINE DEPENDENCE," ALTHOUGH WITHIN THE REPORT, AS I ALSO SAID, IT'S INTERCHANGEABLE.

BUT IT BECAME CLEAR THAT A LOT OF PEOPLE WHO WERE USING DRUGS WERE NOT NECESSARILY ANTISOCIAL, IMMORAL, CRIMINALS, THAT THEY WERE PEOPLE WITH ALCOHOL ABUSE PROBLEMS WHO WERE OTHERWISE REASONABLE OUTSTANDING CITIZENS.

EVEN PEOPLE USING ILLICIT DRUGS, SOME OF THEM WERE HOLDING JOBS, DOING THINGS. THEY WEREN'T ROBBING CARS OR HOUSES.

BUT WHAT WAS CLEAR IN OUR REPORT IS THAT IF WE LOOKED AT THE PROCESS OF ADDICTION IN TERMS OF WHAT DRUGS DO TO THE BRAIN, THE HORMONE CHANGES OF THE BRAIN, THE TOLERANCE THAT OCCURS, THE WITHDRAWAL, THE REINFORCEMENT ISSUES, RESPONSE TO TREATMENT, THE RELAPSE, WHICH MEANS TAKING A DRUG AGAIN ONCE YOU TRY TO QUIT, THEY'RE ALL VERY

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SIMILAR ACROSS DRUGS.

AND WE THOUGHT THAT THE MOST UNDERSTANDABLE TERM FOR EVERYONE WOULD BE TO TALK ABOUT ADDICTION BROADLY AND SAY ALL OF THIS, HEROIN, COCAINE, AMPHETAMINES, ALCOHOL, NICOTINE, ARE ALL WITHIN THE REALM OF DRUG ADDICTION.

AND SO WE USED THIS TERM TO MAKE IT VERY CLEAR THAT ADDICTIONS HAVE A COMMONALITY AND THAT NICOTINE ADDICTION IS NO LESS STRONG THAN HEROIN ADDICTION.

ONE THING THAT PEOPLE OFTEN THINK IS THAT NICOTINE IS SOMEHOW, YOU KNOW, A MILD HABIT. IT'S NOT A SERIOUS ADDICTION.

BUT IF YOU LOOK AT THE DATA ON THE VARIOUS ADDICTIONS WE DID, IF YOU LOOK AT THE NUMBER THAT TRY A DRUG VERSUS THE NUMBER OF PEOPLE THAT USE IT DAILY, IN FACT, NICOTINE GOT THE HIGHEST RATIO. THE VAST MAJORITY OF PEOPLE WHO USE TOBACCO USE IT EVERY DAY AND SMOKE 10 OR MORE CIGARETTES A DAY.

FOR HEROIN OR COCAINE, THERE ARE MANY PEOPLE WHO ONLY OCCASIONALLY USE IT; ONCE A WEEK, ONCE A MONTH. IT'S MUCH DIFFERENT IF YOU LOOK AT HOW DISRUPTIVE IT IS TO ONE'S LIFE WHEN YOU STOP USING IT.

NOW, IT'S TRUE, TOBACCO WITHDRAWAL IS DIFFERENT THAN HEROIN WITHDRAWAL OR ALCOHOL. YOU DON'T HAVE CONVULSIONS. YOU DON'T HAVE FEVER. YOU DON'T HAVE DT'S.

MANY SMOKERS, WHEN THEY TRY TO QUIT, ARE QUITE DYSFUNCTIONAL FOR LONG PERIODS OF TIME. THEY CAN'T GET ALONG WITH PEOPLE. THEY CAN'T DO THEIR JOBS. THEY FEEL MISERABLE.

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WE FELT THAT THE MAGNITUDE OF DISRUPTION WAS COMPARABLE, IF YOU LOOK AT HOW HARD IT IS TO QUIT. QUIT RATES ARE ACTUALLY VERY SIMILAR FOR SMOKING, HEROIN AND

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ALCOHOL.

AND THEN WE LOOKED AT RELAPSE. WHAT ARE THE CHANCES THAT ONCE YOU QUIT, YOU ARE GOING TO GO BACK TO THE HABIT? IT'S ALSO VERY COMPARABLE ACROSS DRUGS.

SO IN THE SURGEON GENERAL'S REPORT, WE WANTED TO USE "ADDICTION" TO MAKE IT CLEAR THAT THESE ARE ALL DRUGS THAT HAVE POWERFUL CONTROL OVER BEHAVIOR, AND THAT THAT IS A COMMONALITY, THAT ONE'S NOT PARTICULARLY LESS STRONG THAN ANOTHER ONE.

SO THAT'S WHY "ADDICTION" WAS USED FOR THE REPORT. I USE IT IN MY WRITING INTERCHANGEABLY. I WRITE ARTICLES THAT ARE TITLED "NICOTINE ADDICTION," BUT WITHIN IT, I TALK ABOUT DEPENDENCE AND ADDICTION BOTH.

Q. AND HOW IS NICOTINE AN ADDICTIVE DRUG? CAN YOU DESCRIBE THAT?

A. YES. YOU SORT OF HAVE TO GO BACK TO THE CIGARETTE PROCESS. A CIGARETTE IS TOBACCO LEAVES THAT CONTAIN NICOTINE.

WHEN YOU BURN A CIGARETTE, IN A SENSE, YOU BOIL UP A BUNCH OF OILS. YOU VAPORIZE NICOTINE AND GENERATE A FOG OR AN AEROSOL, WHICH YOU INHALE. AND THIS FOG CONTAINS MILLIONS OR BILLIONS OF LITTLE DROPLETS THAT ARE TAR DROPLETS, THAT CONTAIN WATER AND CONTAIN NICOTINE.

THESE DROPLETS ARE INHALED INTO YOUR LUNG, WHERE THEY ARE IMPACTED IN YOUR LUNG. NICOTINE IS ABSORBED VERY

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QUICKLY. WITHIN SECONDS AFTER A PUFF, A SMOKER FEELS THE EFFECT OF NICOTINE, SO IT GETS TO THE BRAIN VERY QUICKLY.

WHEN NICOTINE GETS TO THE BRAIN, IT WORKS ON CERTAIN PROTEINS CALLED RECEPTORS. AND TO UNDERSTAND IT FULLY, I HAVE TO TALK ABOUT SOMETHING CALLED ACETYLCHOLINE, WHICH IS A CHEMICAL IN THE BRAIN AND IN OUR BODIES WHICH TRANSMITS INFORMATION FROM ONE CELL TO ANOTHER. IT'S IN EVERY CELL IN THE BODY, AND IT'S VERY MUCH INVOLVED IN CONTROLLING ALL OF OUR NERVOUS ACTIVITY, THINKING, FEELINGS, COORDINATION, ALL SORTS OF THINGS.

NICOTINE BINDS TO RECEPTORS OR PROTEIN THAT ARE MEANT FOR ACETYLCHOLINE. SO NICOTINE IS NOT NORMALLY IN OUR SYSTEM BUT ACETYLCHOLINE IS.

WHEN YOU TAKE NICOTINE, YOU ACTIVATE RECEPTORS THAT ARE NOT NORMALLY BEING ACTIVATED AT THAT TIME BY THE BODY.

Q. WHAT DO YOU MEAN, "THEY'RE NOT NORMALLY BEING ACTIVATED BY THE BODY"?

A. SAY A NERVE COULD RELEASE ACETYCHOLINE TO ACTIVATE A RECEPTOR.

Q. WHAT IS A RECEPTOR, FIRST?

A. A RECEPTOR IS A PROTEIN OF A CERTAIN SHAPE. I GUESS THE BEST ANALOGY IS A LOCK AND A KEY. A RECEPTOR IS LIKE A LOCK. IT'S SHAPED A CERTAIN WAY.

IF ANOTHER CHEMICAL OF A PARTICULAR SHAPE ENTERS IT, IT'S LIKE A KEY. IT OPENS IT UP. IT TURNS IT ON OR ACTIVATES IT.

Q. AND THEN, IT RELEASES SOME KIND OF A HORMONE?

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A. IT DOES SOMETHING TO THE BODY. I WILL EXPLAIN THAT IN A MINUTE.

SO NICOTINE IS LIKE A KEY. ACETYLCHOLINE IS A KEY FOR THE SAME LOCK. BOTH OF THEM WORK ON THE SAME LOCK.

AND VARIOUS TIMES, IF YOU HAVE AN EMOTIONAL RESPONSE OR YOU'RE CONCENTRATING OR SOMETHING LIKE THAT, THERE ARE A BUNCH OF REASONS WHY YOUR BODY MIGHT RELEASE ACETYLCHOLINE TO ACTIVATE THIS RECEPTOR.

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WHEN YOU SMOKE A CIGARETTE, YOU TAKE NICOTINE, WHICH THEN GOES ON AND ACTIVATES A RECEPTOR, INDEPENDENT OF THE OTHER THINGS THAT WOULD NORMALLY ACTIVATE IT.

THESE RECEPTORS ARE ALL OVER THE BRAIN, DIFFERENT PARTS OF THE BRAIN. THERE ARE MANY OF THEM; DIFFERENT TYPES OF RECEPTORS FOR NICOTINE.

BUT WHEN NICOTINE BINDS TO THEM, IT CAUSES THE BRAIN TO RELEASE HORMONES, A WHOLE VARIETY OF HORMONES.

THE ONE THAT'S TALKED ABOUT MOST COMMONLY IS DOPAMINE.

Q. WHAT IS DOPAMINE?

A. DOPAMINE IS ANOTHER CHEMICAL IN THE BRAIN THAT IS INVOLVED IN EXPERIENCING PLEASURE, SIGNALING PLEASURE, IN EXPERIENCING SOMETHING THAT'S A GOOD FEELING. IT'S INVOLVED IN AROUSAL AND MOOD AND APPETITE, A WHOLE VARIETY OF THINGS.

DOPAMINE, THOUGH, IS THE SINGLE SORT OF BRAIN HORMONE THAT HAS BEEN LINKED MOST CLOSELY TO DRUG ABUSE. EVERY DRUG THAT'S ABUSED RELEASES DOPAMINE IN ONE SMALL PART OF THE BRAIN. IT'S THE HYPOTHALAMUS.

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BUT HEROIN, COCAINE, AMPHETAMINES, ALCOHOL, NICOTINE ALL RELEASE DOPAMINE INTO ONE AREA. NOW, THEY DO DIFFERENT THINGS, BUT THEY ALL HAVE THIS ONE DOPAMINE EFFECT.

IF YOU LOOK AT ANIMAL RESEARCH, WHERE ANIMALS WILL GIVE THEMSELVES DRUGS THAT ARE ADDICTIVE, THEY'LL PUSH BUTTONS LIKE LEVERS TO SELF-ADMINISTER A DRUG. IF YOU BLOCK DOPAMINE PATHWAYS BY EITHER CERTAIN CHEMICALS OR ACTUALLY CUTTING PATHWAYS INVOLVING DOPAMINE, IF YOU BLOCK THOSE AFFECTS, ANIMALS WILL NOT SELF-ADMINISTER ANY OF THE DRUGS, COCAINE, HEROIN OR NICOTINE.

SO DOPAMINE IS INVOLVED WITH ALL DRUG REINFORCEMENT. SO ONE THING WE THINK THAT SMOKERS GET FROM NICOTINE EFFECTS IS PLEASURE FROM DOPAMINE.

OTHER HORMONES ARE RELEASED AS WELL. ADRENALINELIKE HORMONES THAT ARE INVOLVED WITH AROUSAL. SO SMOKERS FEEL AROUSED. THEY CAN HELP FOCUS BETTER. HORMONES THAT INVOLVE MEMORY ARE RELEASED. HORMONES THAT INVOLVE MOOD CONTROL.

SOMETHING CALLED SERATONIN IS RELEASED, WHICH IS INVOLVED IN CONTROL OF MOOD AND APPETITE CONTROL. ENDORPHINS, WHICH ARE SORT OF THE BODY'S OWN MORPHINE GET RELEASED.

THERE ARE A NUMBER. GABA, WHICH IS A HORMONE THAT IS SORT OF A TRANQUILLIZING HORMONE. WHEN YOU TAKE A DRUG LIKE VALIUM, IT WORKS BY GABA OR GABA RECEPTORS. AND NICOTINE CAUSES GABA RELEASE.

THE NET RESULT OF ALL THESE HORMONES THAT ARE

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BEING RELEASED, IF YOU UNDERSTAND, IF YOU TALK TO SMOKERS ABOUT WHY AND WHEN THEY SMOKING.

Q. WHAT DO YOU MEAN?

A. WELL, FOR EXAMPLE, A SMOKER HAS A CIGARETTE OFTEN AS SOON AS THEY WAKE UP IN THE MORNING, AND THAT HELPS GET THEM GOING, HELPS WAKE THEM UP, ACTIVATES THEM, AROUSES THEM. IT'S LIKE COFFEE FOR PEOPLE WHO DRINK COFFEE.

IF A SMOKER IS DOING A JOB THROUGHOUT THE DAY AND IS GETTING FATIGUED OR CAN'T CONCENTRATE, A CIGARETTE HELPS THEM FOCUS AND CONCENTRATE. SO IT'S GOT AN EFFECT ON CONCENTRATION.

AT THE SAME TIME, IF YOU'RE FEELING ANXIOUS, A CIGARETTE CAN RELAX YOU. IF YOU'RE FEELING STRESSED, A

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CIGARETTE DEALS WITH STRESS. IF YOU HAVE -- IF YOU WANT TO RELAX AT NIGHTTIME TO GO TO BED, YOU HAVE A CIGARETTE TO HELP YOU FALL ASLEEP.

SO PEOPLE COME TO USE NICOTINE TO REALLY ADJUST THEIR AROUSAL LEVEL, THEIR MOOD, TO DEAL WITH STRESS, TO DEAL WITH HUNGER.

PEOPLE COME TO USE NICOTINE AS A WAY SORT OF ARTIFICIALLY ACTIVATING THESE ACETYLCHOLINE RECEPTORS IN THE BRAIN. SO THE FIRST PART OF WHY PEOPLE SMOKE IS THEY USE NICOTINE TO CONTROL MOOD AND ACTIVITY LEVELS.

THE SECOND PART HAS TO DO WITH WHAT HAPPENS WHEN THEY QUIT, WHEN THEY TRY TO STOP SMOKING.

WHEN A PERSON SMOKES CIGARETTES ON A REGULAR BASIS, NICOTINE GOES TO THE BRAIN AND HAS EFFECTS ON BRAIN RECEPTORS, WHICH THEN ADAPT --

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Q. WHAT DO YOU MEAN, THEY "ADAPT"?

A. WELL, THEY BECOME TOLERANT. SAY THE FIRST SLUG IN THE MORNING, YOU GET A DOPAMINE RELEASE, BUT THEN THE SECOND SLUG, YOU DON'T GET SO MUCH RELEASE.

AFTER A WHILE, YOU DON'T GET ANY AT ALL THROUGHOUT THE DAY. AND OVER TIME, BRAIN RECEPTORS INCREASE IN NUMBER, SO THAT THE BRAIN STRUCTURE CHANGES. AND THIS HAS BEEN WELL SHOWN IN AUTOPSY SAMPLES OF SMOKERS AND NONSMOKERS.

IF YOU LOOK AT NICOTINE RECEPTORS IN THE BRAIN, THERE ARE MANY MORE RECEPTORS IN THE BRAIN OF SMOKERS THAN NONSMOKERS, BECAUSE THESE RECEPTORS ARE ADAPTING TO THE EFFECTS OF NICOTINE. SO THE STRUCTURE OF THE BRAIN CHANGES.

AFTER A WHILE, THE BRAIN, WHEREAS THE FIRST DOSE, NICOTINE MAYBE CAUSED A DOPAMINE RELEASE, AFTER A WHILE, THE BRAIN NEEDS DOPAMINE JUST TO HAVE A NORMAL RELEASE. SO IT'S BECOME TOLERANT.

THEN, IF YOU DON'T SMOKE, YOU FEEL BAD, YOU DON'T FEEL GOOD ANYMORE. THE SAME THING FOR THE OTHER HORMONES.

Q. SO THE KEY IS MISSING TO THE RELEASE OF THE THING THAT MAKES YOU FEEL GOOD?

A. NO. THE BRAIN TRIES TO SORT OF NORMALIZE THINGS. SO IF A SYSTEM IS GETTING STIMULATED ALL THE TIME, THEN THE BRAIN WANTS TO SORT OF DOWN-ADJUST IT, SO THAT SIMULATION DOESN'T KEEP ON CAUSING EXCESSIVE HORMONE RELEASE. AND TO DO THAT, IT MAKES THE BRAIN LESS RESPONSIVE TO ACETYLCHOLINE.

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AND THEN, WHEN YOU STOP HAVING NICOTINE, THEN THE HORMONES ARE NOT BEING RELEASED NORMALLY BECAUSE THEY NEED NICOTINE FOR NORMAL RELEASE. SO THEN YOU HAVE LESS DOPAMINE THAN NORMAL OR LESS ADRENALINE OR LESS SERATONIN OR LESS GABA.

AND WHAT A SMOKER FEELS THEN, WHEN THEY TRY TO QUIT SMOKING, THEY FEEL IRRITABLE, THEY GET ANXIOUS, THEY HAVE TROUBLE GETTING ALONG WITH A SPOUSE AND FRIENDS AND CHILDREN OFTEN.

THE SMOKERS OFTEN CAN'T CONCENTRATE ON THEIR JOBS, CAN'T DO THE WORK PROPERLY, CAN'T FOCUS. THEY EAT MORE. THEY GAIN WEIGHT. AND THOSE ARE SORT OF SHORT-TERM EFFECTS.

LONGER TERM EFFECTS ARE THINGS THAT HAVE JUST BEEN STUDIED IN RECENT YEARS. SOMETHING CALLED DYSPHORIA.

Q. WHAT IS THAT?

A. PEOPLE DON'T FEEL RIGHT. THEY DON'T FEEL NORMAL.

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THIS CAN LAST FOR MONTHS AFTER STOPPING SMOKING. SOMETHING IS MISSING IN THEIR LIFE. THEY'RE NOT ENJOYING PLEASURE IN A NORMAL WAY. THEY FEEL A LITTLE BIT DEPRESSED, LIKE SOMETHING IS JUST NOT RIGHT. THAT CAN TAKE MONTHS TO NORMALIZE.

THIS SORT OF SYMPTOM COMPLEX OF DYSPHORIA AND DEPRESSION HAS ACTUALLY BEEN STUDIED. ALL DRUGS OF ABUSE, IT'S VERY SIMILAR. ALL DRUGS HAVE SORT OF A SHORT-TERM WITHDRAWAL SYNDROME THAT LASTS MAYBE A WEEK OR TWO. AND SOMETIMES WHEN IT'S SEVERE, SOMETIMES IT CAN BE LIKE

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SMOKING, WHERE YOU JUST CAN'T CONCENTRATE OR YOU CAN'T GET ALONG WITH PEOPLE.

BUT ALL OF THESE DRUGS CAN HAVE FOR MONTHS AND MONTHS JUST THIS FEELING OF NOT FEELING RIGHT, NOT ENJOYING LIFE, BEING DEPRESSED. AND THAT'S PROBABLY WHY THERE'S SUCH A LATE RELAPSE. A LOT OF SMOKERS MAYBE TRY TO QUIT SMOKING AND THEY RELAPSE IN THE FIRST WEEK OR TWO WHEN THEY'RE HAVING WITHDRAWAL SYMPTOMS.

BUT THEN, IF YOU FOLLOW PEOPLE FOR SIX MONTHS OR A YEAR, PEOPLE KEEP ON GOING BACK TO SMOKING, EVEN AFTER THEY'VE QUIT SUCCESSFULLY FOR A MONTH OR TWO MONTHS OR THREE MONTHS, EVEN SIX MONTHS. FOR UP TO A YEAR OR SO, PEOPLE KEEP ON GETTING STRESSED OR FEELING DEPRESSED AND END UP SMOKING AGAIN.

SO THE SECOND PART OF NICOTINE ADDICTION IS REALLY THE WITHDRAWAL SYMPTOMS.

PEOPLE GET SOME POSITIVE THINGS FROM NICOTINE, AND THEN WHEN THEY DON'T HAVE NICOTINE, THEY FEEL BAD. SO THE NET RESULT IS THAT MANY PEOPLE HAVE GREAT DIFFICULTY QUITTING SMOKING.

Q. AND HAVE YOU LOOKED AT THE ISSUE OF HOW QUICKLY OR HOW RAPIDLY NICOTINE AFFECTS THE BODY AND GETS TO THE BRAIN?

A. YES.

Q. AND IN WHAT WAY HAVE YOU LOOKED AT THAT?

A. WELL, THE ISSUE -- AN IMPORTANT ISSUE FOR DRUG ABUSE IN GENERAL HAS TO DO WITH THE INTENSITY OF THE EFFECT, HOW WELL A PERSON CAN CONTROL THE EFFECT, TOLERANCE,

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QUESTIONS THINGS LIKE THAT.

WHEN YOU SMOKE A DRUG, IT'S DIFFERENT THAN, SAY, WHEN YOU TAKE A PILL IN A LOT OF WAYS THAT ARE VERY IMPORTANT.

FIRST OF ALL, WHEN YOU SMOKE A DRUG, YOU GET THE EFFECT OF THE DRUG WITHIN A FEW SECONDS.

Q. CAN YOU POSSIBLY ILLUSTRATE THIS TO HELP THE JURY UNDERSTAND?

MS. CHABER: MAY THE WITNESS STEP DOWN, YOUR HONOR.

THE COURT: SURE.

MS. CHABER: THERE'S SOME THINGS THERE, AND HERE ARE OTHER THINGS (INDICATING).

THE WITNESS: (PREPARING DRAWING)

(HAND RAISED)

THE COURT: YES. ONE OF THE JURORS CAN'T SEE.

THE WITNESS: I'M GOING TO ACTUALLY MOVE THIS IN A SECOND.

MS. CHABER: Q. MAYBE WE CAN MOVE THIS UP A BIT SO THAT THE JURY CAN SEE A LITTLE BIT BETTER. I THINK THAT'S PART OF THE PROBLEM.

A. WHAT I'M DRAWING HERE IS A GRAPH THAT BASICALLY SHOWS TWO THINGS. THIS WAY IS TIME AND THIS IS IN SECONDS,

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SO IT'S UP TO 60 SECONDS (INDICATING).
AND THIS WAY, GOING UP (INDICATING), IS THE BLOOD LEVEL OF NICOTINE IN THE BLOOD THAT GOES TO THE BRAIN. SO I'LL MAKE THIS "ARTERIAL BLOOD LEVEL." SO IT'S THE AMOUNT -- IT'S A LEVEL IN THE BLOOD THAT ENTERS THE BRAIN.

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WHEN YOU SMOKE A CIGARETTE, WITHIN A COUPLE OF SECONDS OF TAKING A PUFF, NICOTINE GOES INTO YOUR LUNG AND THEN GETS ABSORBED VERY QUICKLY. I THOUGHT, IN THE PAST, WITHIN 10 SECONDS. THERE IS SOME RECENT DATA THAT SUGGESTS IT TAKES MAYBE 30 SECONDS.

BUT IN ANY CASE, IN A VERY SHORT PERIOD OF TIME, NICOTINE LEVELS RISE QUICKLY IN THE BRAIN. AND THEN IT SORT OF FALLS OFF VERY SLOWLY (INDICATING).

THIS IS IMPORTANT BECAUSE --

Q. THESE ARE SECONDS WE ARE TALKING ABOUT; RIGHT?

A. THESE ARE SECONDS. AND THE PUFFS. THIS IS THE TIME OF TAKING A PUFF (DRAWING). SO WITHIN ABOUT 10 SECONDS OF A PUFF, YOU ALREADY HAVE A LOT IN YOUR BLOODSTREAM, AND BY 30 SECONDS OR SO, YOU HAVE A PEAK LEVEL.

THIS IS IMPORTANT, AS I SAID BEFORE, ONE, BECAUSE IF YOU TAKE A PUFF ON A CIGARETTE, YOU GET THE EFFECT RIGHT AWAY. SO WHAT YOU'RE DOING GETS REINFORCED QUICKLY.

WE KNOW FROM DRUG ABUSE STUDIES, WHEN YOU DO SOMETHING, YOU FEEL THE CONSEQUENCE RIGHT AWAY. ACTUALLY, ANY KIND OF BEHAVIOR, YOU'RE MORE LIKELY TO CONTINUE THAT BEHAVIOR. IF IT'S SOMETHING YOU LIKE, YOU TAKE A PUFF, YOU GET AN EFFECT RIGHT AWAY.

A SECOND THING IS THAT THESE LEVELS ARE MUCH HIGHER THAN YOU COULD EVER TAKE IF YOU, SAY, TOOK A PILL, BECAUSE THESE LEVELS (INDICATING) ARE VERY HIGH IN THE BRAIN AND FALL QUICKLY.

IF YOU TOOK A PILL, YOU WOULD HAVE POISONING FROM THIS KIND OF LEVEL. BUT BECAUSE IT GETS ABSORBED IN A SMALL

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AMOUNT OF BLOOD, GOES TO THE BRAIN QUICKLY, GOES UP TO THE BODY TISSUE, YOU GET A MUCH HIGHER LEVEL THAN YOU GET FROM ANY OTHER ROOT. MAYBE INJECTION.

THE THIRD THING IS DOSE CONTROL. THE SMOKER CAN TAKE A PUFF. WITHIN 20, 30 SECONDS, WHAT THE EFFECT IS GOING TO BE, YOU CAN TELL IF THEY WANT MORE OR LESS, THEY CAN GET A BIGGER OR SMALLER PUFF OR CAN STOP SMOKING A CIGARETTE. SO THERE IS VERY FINE DOSE CONTROL OF NICOTINE INTAKE.

SO I'D SAY THREE THINGS. (WRITING ON BOARD).

ONE THAT IS IMPORTANT IS VERY RAPID ENTRY INTO THE BRAIN IS IMPORTANT. THERE'S A HIGH LEVEL WHICH YOU COULDN'T GET BY OTHER ROOTS. THERE'S DOSE CONTROL.

AND A FOURTH POINT, WHICH IS IMPORTANT, I TALKED BEFORE ABOUT TOLERANCE. IF LEVELS RISE SLOWLY, THEN THE BRAIN BECOMES TOLERANT. YOU DON'T GET THE FAST SLUG. THE BRAIN CAN'T BECOME TOLERANT TO IT FROM ONE PUFF TO THE NEXT. YOU GET NO TOLERANCE.

ALL OF THESE THINGS MAKE FOR A DRUG EFFECT THAT'S REALLY AN OPTIMAL DRUG EFFECT FROM SMOKING A CIGARETTE.

Q. WHAT DO YOU MEAN BY "OPTIMAL"?

A. "OPTIMAL" MEANS THAT YOU GET THE MOST BRAIN EFFECT, THE MOST PSYCHOACTIVITY THAT YOU DO FROM A DRUG THAN YOU COULD GET FROM ANY ROOT OF DOSING.

IF YOU WERE TO LOOK IN THE SAME SCALE, FOR EXAMPLE, AT NICOTINE GUMS OR NICOTINE PATCHES, NICOTINE GUM DOESN'T PEAK FOR 30 MINUTES. SO A BUMP ON THE SCALE. YOU'D SEE SOMETHING LIKE THAT (DRAWING).

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AND THE PATCH WOULD BE THE SAME THING. YOU SEE A VERY SLOW RISE. THAT'S WHY SMOKERS, WHEN THEY TAKE NICOTINE GUMS OR PATCHES, IT HELPS THEM HAVE LESS WITHDRAWAL SYMPTOMS, BUT THEY NEVER GET THE PSYCHOACTIVITY. THEY DON'T GET THE HIGH. THEY DON'T GET THE MOOD MODULATION. THEY DON'T GET THE SAME EFFECTS THAT YOU GET FROM SMOKING A CIGARETTE.

SO NICOTINE MEDICATIONS ARE NEVER A SUBSTITUTE FOR SMOKING. PEOPLE DON'T GET THE SAME SATISFACTION.

IT HELPS THEM WITH WITHDRAWAL SYMPTOMS BUT IT DOESN'T GIVE THEM SATISFACTION.

IF WE LOOK AT -- THIS MIGHT BE NICOTINE GUM OR PATCHES (DRAWING). THIS COULD ALSO BE CAFFEINE. THERE ARE SOME STIMULANT QUANTITIES OF CAFFEINE. SOME PEOPLE HAVE TRIED TO SAY NICOTINE AND CAFFEINE ARE BOTH MILD STIMULANTS. THERE'S NO BIG DEAL ABOUT IT.

CAFFEINE, THOUGH, IS TAKEN BY MOUTH, A BEVERAGE. IT'S ABSORBED SLOWLY. IT TAKES 30 MINUTES BEFORE CAFFEINE LEVELS GET TO THE PEAK LEVEL IN THE BRAIN. THE EFFECTS OF CAFFEINE, THERE IS SOME AROUSAL. IT'S A GENTLE, SLOW EFFECT. IT'S NOT LIKE A 10-SECOND EFFECT.

THE FACT THAT YOU GET A RAPID RATE OF DRUG LEVEL IN THE BRAIN QUICKLY IS WHAT MAKES NICOTINE ADDICTIVE, AND MAKES CIGARETTE SMOKING AND CRACK COCAINE ADDICTIVE.

IT REALLY IS THE MOST ADDICTIVE WAY OF USING A DRUG. AND IT'S WHAT MAKES IT MUCH DIFFERENT THAN OTHER NICOTINE PRODUCTS, AND CERTAINLY THINGS LIKE CAFFEINE.

Q. IN TERMS OF FOOD -- I MEAN, I THINK PEOPLE THINK

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OF CHOCOLATE AS MAYBE -- CHOCOLATE AS RELEASING SOME DOPAMINES OR SERATONIN IN THE BRAIN.

HOW WOULD YOU COMPARE THAT TO NICOTINE?

A. WELL, CERTAINLY A LOT OF BEHAVIORS COULD CAUSE DOPAMINE RELEASE. DOPAMINE IS SUPPOSED TO BE RELEASED WHEN YOU'RE EXPERIENCING PLEASURE. SO, YOU KNOW, IF YOU'VE GOT SOMETHING WONDERFUL HAPPENING TO YOU, IF YOU HAVE A GREAT MEAL OR SOMETHING LIKE THAT, YOUR BRAIN GETS ACTIVATED. YOU ACTIVATE ACETYLCHOLINE, WHICH YOU ARE EXPOSED TO AND YOU GET DOPAMINE RELEASE. IT'S PART OF PLEASURE.

HOWEVER, THOSE ARE ALSO BUILDING CIRCUITS THAT ARE CONNECTED TO NORMAL LIFE ACTIVITIES. IT'S NOT THE SAME THING AS DOSING YOURSELF WITH A DRUG TO SORT OF STIMULATE THOSE RECEPTORS AT WILL. IT'S A DIFFERENT KIND OF PHENOMENON TOTALLY.

NOW, FOOD, CAFFEINE DOES HAVE EFFECTS. IT CAN CAUSE DOPAMINE RELEASE. THE EFFECTS OF CAFFEINE ARE MUCH MILDER. IT'S REINFORCING IT, BUT IT DOESN'T DO ALL THE SAME THINGS AS NICOTINE.

PEOPLE USE CAFFEINE FOR AROUSAL. A LOT OF THAT ACTUALLY HAS TO DO WITH NOT HAVING HAD COFFEE AFTER BEING A REGULAR COFFEE DRINKER. AND MOST PEOPLE WHO ARE ADVISED BY THEIR DOCTORS TO SWITCH, SAY, FROM CAFFEINATED TO DECAF COFFEE CAN DO IT. THEY CAN HAVE WITHDRAWAL SYMPTOMS, MOSTLY HEADACHES. MOST PEOPLE WHO DRINK COFFEE OR TEA, WHEN THEY SKIP A DAY, CAN GET A HEADACHE, BUT IT'S GONE WITHIN A DAY.

AND THERE REALLY IS VERY LITTLE ABUSE OF CAFFEINE THE WAY THERE IS OF OTHER DRUGS. AND THERE'S ALSO VERY

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LITTLE HEALTH CONSEQUENCE FROM IT.

BUT IN TERMS OF LOSS OF CONTROL OF DRUG USE, WHICH IS THE BIG ISSUE HERE, MOST CAFFEINE USERS, IF THE DOCTOR SAYS, "STOP USING CAFFEINE, SWITCH TO DECAF," THEY

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CAN DO IT.
MOST SMOKERS, IF THE DOCTOR SAYS, "QUIT SMOKING," THEY HAVE TO TRY FOUR, FIVE TIMES. THEY MAY EVENTUALLY QUIT, BUT IT'S HARD. IT'S MUCH HARDER.
Q. NOW, ARE THERE WAYS THAT YOU BELIEVE ARE APPROPRIATE -- OR WHAT DO YOU USE IN YOUR PRACTICE TO DETERMINE WHETHER SOMEBODY IS ADDICTED TO NICOTINE?
A. THERE HAS BEEN A LOT RESEARCH ON THE QUESTION OF DETERMINING WHO IS ADDICTED, WHO IS DEPENDENT.
THE MAIN INSTRUMENT OR QUESTIONNAIRE WHICH HAS BEEN USED BY PEOPLE IN THE FIELD IN SMOKING CLINICS OR IN RESEARCH HAS BEEN SOMETHING CALLED THE FAGERSTROM, F-A-G-E-R-S-T-R-O-M, DEPENDENCE QUESTIONNAIRE.
Q. AND ARE THERE A SERIES OF QUESTIONS THAT ARE INVOLVED IN THE FAGERSTROM?
A. YES.
Q. AND AT THE RISK OF MAKING YOU STAND UP HERE AND DO MORE WRITING, COULD WE ILLUSTRATE THOSE FOR THE JURY.
MS. CHABER: DOES THE COURT WISH ME TO MARK THE PAGES AS WE GO THROUGH THEM OR AT THE END IN ONE GROUP?
THE COURT: IS THE DISTINCTION THAT WE ARE DRAWING -- BECAUSE ANYTHING THAT THE LAWYERS AGREE TO IS FINE WITH ME IN THIS REGARD -- THAT WHEN COUNSEL DRAWS SOMETHING ON THE BOARD, WE DON'T HAVE IT MARKED, BUT WHEN A

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WITNESS DOES, WE HAVE IT MARKED FOR IDENTIFICATION ONLY? IS THAT THE DISTINCTION?
MS. CHABER: YES.
MR. FURR: THAT'S WHAT I UNDERSTAND.
MS. CHABER: THAT'S WHAT I UNDERSTOOD.
THE COURT: THAT'S FINE.
WHY DON'T WE, WITH A GIVEN WITNESS, JUST MARK ALL OF THEIR DRAWINGS AS A GROUP EXHIBIT FOR IDENTIFICATION WHEN THEY FINISH DOING THE DRAWINGS.
MS. CHABER: THANK YOU, YOUR HONOR. I THINK THAT WOULD WORK APPROPRIATELY.
Q. SO THE NAME WAS?
A. IT'S THE FAGERSTROM TOLERANCE DEPENDENCE QUESTIONNAIRE (WRITING ON BOARD).
Q. FIRSTLY, WHY DO YOU BELIEVE THAT THAT'S THE MOST APPROPRIATE SCALE TO USE WITH RESPECT TO AN INDIVIDUAL'S ADDICTION?
A. WELL, IN ALL THE VARIOUS RESEARCH THAT'S BEEN DONE, THE QUESTION -- THE ULTIMATE QUESTION FOR ADDICTION IS: HOW HARD IS IT TO STOP USING THE DRUG WHEN YOU WANT TO STOP USING IT?
Q. OKAY.
A. AND OF THE VARIOUS PREDICTORS THAT HAVE BEEN LOOKED AT IN VARIOUS RESEARCH STUDIES, THE THING THAT PREDICTS THE FAILURE TO QUIT SMOKING FOR SOMEONE WHO ENTERS A TREATMENT PROGRAM, FOR EXAMPLE, IS THE FAGERSTROM DEPENDENCE QUESTIONNAIRE SCORE.
Q. OKAY. SO CAN WE GO THROUGH THOSE.

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A. AND THERE ARE EIGHT QUESTIONS.
THE COURT: I NOTICED, DOCTOR, THAT YOU ARE LOOKING AT SOME MATERIAL, WHICH IS OKAY. BUT ALL THE LAWYERS HAVE A RIGHT TO LOOK AT IT.
THE WITNESS: RIGHT.
THE COURT: MAYBE YOU'VE ALL SEEN IT.
MR. FURR: FOR NOW, YOUR HONOR, CAN WE JUST IDENTIFY WHAT HE'S LOOKING AT?
THE COURT: YES.

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THE WITNESS: THIS IS FROM AN ARTICLE THAT I WROTE ENTITLED "NICOTINE ADDICTION" THAT WAS PUBLISHED IN THE JOURNAL OF PRIMARY CARE, VOLUME 26, PAGE 611, 1999.

THE COURT: YOU MAY PROCEED.

THE WITNESS: I DON'T HAVE ROOM TO WRITE OUT THE FULL TEXT, BUT I'LL JUST WRITE OUT SOMETHING THAT WILL REMIND YOU OF WHAT IT IS.

MS. CHABER: Q. YOU'LL TELL US WHAT THE FULL QUESTION IS, AND THEN WE'LL PUT SOME SORT OF ABBREVIATED VERSION OF IT ON THE CHART?

A. YES. (WRITING ON BOARD)

SO THE FIRST QUESTION IS: "HOW SOON AFTER YOU WAKE UP DO YOU SMOKE YOUR FIRST CIGARETTE?"

NOW, THAT'S IMPORTANT BECAUSE SOMEONE WHO IS VERY DEPENDENT, WHEN THEY'RE SLEEPING, THE NICOTINE LEVELS ARE DROPPING IN THE BRAIN. WHEN THEY WAKE UP, THEY HAVE AN INTENSE CRAVING FOR MORE NICOTINE. THEY HAVE WITHDRAWAL SYMPTOMS. HIGHLY ADDICTED SMOKERS HAVE CIGARETTE PACKS RIGHT BY THE BEDSIDE AND TAKE A CIGARETTE WHEN THEY FIRST

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WAKE UP.

SOME SMOKERS ACTUALLY CAN'T EVEN SLEEP THROUGH THE NIGHT. MOST SMOKERS WHO ARE HIGHLY DEPENDENT HAVE CIGARETTES RIGHT BY THE BED. "HOW SOON IS THIS? WITHIN 30 MINUTES OR AFTER 30 MINUTES?"

THE SECOND THING IS: "DO YOU FIND IT DIFFICULT TO REFRAIN FROM SMOKING IN PLACES WHERE IT IS FORBIDDEN, SUCH AS CHURCHES, LIBRARIES, ETCETERA?" SO IT'S DIFFICULT TO REFRAIN FROM SMOKING.

THERE, WHAT YOU COMMONLY HAVE, SOMEONE SAYS, "I'M GOING TO SOMEPLACE WHERE I CAN'T SMOKE. I CAN'T STAY THERE THE WHOLE TIME."

THEY WILL LEAVE A CHURCH, THEY WILL LEAVE A MOVIE, THEY WILL GO OUTSIDE TO SMOKE RATHER THAN STAY INSIDE WHERE THEY ARE SUPPOSED TO BE.

Q. SO, FOR EXAMPLE, PEOPLE GO TO WORK AND CAN'T SMOKE IN THE BUILDING, SO THEY GO OUTSIDE ON BREAKS AND HAVE THEIR CIGARETTES?

A. RIGHT.

THE THIRD QUESTION IS: "WHICH CIGARETTE WOULD YOU HATE MOST TO GIVE UP?"

AND THE TWO ANSWERS ARE, "THE FIRST ONE IN THE MORNING" OR "ANY OTHER."

AND HERE, THIS DEALS WITH THE SAME ISSUE AS THE FIRST QUESTION. PEOPLE WHO ARE REALLY DEPENDENT CAN'T GO A VERY LONG TIME WITHOUT NICOTINE. THERE ARE SOME SMOKERS WHO ARE NOT VERY DEPENDENT.

YOU SEE SMOKERS FROM TIME TO TIME WHO SMOKE A

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CIGARETTE AFTER DINNER. THAT'S ALL THEY SMOKE. THAT'S NOT AN ADDICTED SMOKER. WE ARE TALKING ABOUT THE ADDICTED SMOKER.

I'LL JUST SAY, "WHICH CIGARETTE WOULD YOU HATE MOST TO GIVE UP? "

THE FOURTH QUESTION IS: "HOW MANY CIGARETTES DO YOU SMOKE PER DAY?"

AND THAT'S REALLY, ROUGHLY SPEAKING, A DOSE. THE MORE YOU SMOKE, THE MORE NICOTINE YOU TAKE IN.

AND IN GENERAL, FOR DRUGS, THE BIGGER THE DOSE OF THE DRUG YOU TAKE IN THE DAY, THE MORE DEPENDENT YOU ARE.

Q. THERE ARE SOME PEOPLE WHO CAN HAVE A CIGARETTE ONCE A WEEK OR ONCE A MONTH AT SOME SOCIAL OCCASION.

ARE THOSE PEOPLE, GENERALLY SPEAKING, WHO ARE

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DEPENDENT OR ADDICTED?
A. THERE ARE PEOPLE WHO ARE FORTUNATE, WHO DO NOT BECOME ADDICTED, WHO SMOKE OCCASIONALLY, WHO SMOKE A CIGARETTE OR TWO A DAY.
AND THOSE PEOPLE, WHEN THEY NEED TO QUIT, QUIT WITHOUT A PROBLEM.
THE COURT: MS. CHABER, YOU TELL US WHEN -- SOMETIME IN THE NEXT FIVE MINUTES OR SO, I'M GOING TO NEED TO TAKE THE MORNING RECESS. WHEN YOU GET TO A LOGICAL POINT, LET US KNOW.
MS. CHABER: I THINK WE MIGHT BE ABLE TO GET THROUGH ALL EIGHT CRITERIA AND THEN WE CAN STOP THERE AND GO ON AFTER THE BREAK.
THE COURT: ALL RIGHT.

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THE WITNESS: NO. 5 IS: "DO YOU SMOKE MORE FREQUENTLY DURING THE FIRST HOURS AFTER AWAKENING THAN DURING THE REST OF THE DAY?"
THAT AGAIN GOES BACK TO THE SAME ISSUE AS THE FIRST QUESTION.
AND THEN THE SIXTH ONE IS: "DO YOU SMOKE IF YOU ARE SO ILL THAT YOU ARE IN BED MOST OF THE DAY?"
SO AGAIN, SOMEONE WHO IS VERY HIGHLY DEPENDENT, EVEN IF THEY'RE COUGHING OR FEEL SICK, WILL STILL SMOKE.
THE NEXT ONE ASKS: "WHAT IS THE NICOTINE LEVEL OF YOUR USUAL BRAND OF CIGARETTE?"
MS. CHABER: Q. AND WHAT DOES THAT RELATE TO?
A. WELL, THAT REALLY HAS TO DO WITH LOW-YIELD AND HIGH-YIELD CIGARETTES.
THE IDEA IS THAT THIS SHOULD BE A DOSE FACTOR (INDICATING). IN FACT, IT DOESN'T -- THIS PARTICULAR QUESTION DOESN'T WORK AS WELL AS IT WAS ORIGINALLY THOUGHT TO BECAUSE OF, AS I EXPLAINED BEFORE, THAT FOR MOST COMMERCIAL CIGARETTES, PEOPLE CAN TAKE IN THE SAME AMOUNT FROM DIFFERENT KIND OF CIGARETTES.
Q. WE ARE GOING TO TALK ABOUT THAT WHOLE PHENOMENON A LITTLE LATER ON. WHY DON'T YOU GO ON.
A. AND THE LAST ONE IS: "DO YOU INHALE?"
AND IT ASKS "NEVER, SOMETIMES, ALWAYS?"
SO IF YOU HAVE A SCORE THAT'S GREATER THAN SEVEN, THAT'S A HIGH LEVEL OF DEPENDENCE ON THIS INSTRUMENT.
MS. CHABER: OKAY. THIS WOULD BE A GOOD TIME, YOUR HONOR.

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THE COURT: OKAY. JURORS, LET'S TAKE A 20-MINUTE RECESS, PLEASE, TILL 11:15. PLEASE CONTINUE TO FOLLOW THE ADMONITION.
WE'LL SEE YOU BACK AT 11:15.
(RECESS TAKEN FROM 10:50 TO 11:15 A.M.)
THE COURT: WE ARE BACK ON THE RECORD.
MS. CHABER, YOU MAY PROCEED.
MS. CHABER: Q. DR. BENOWITZ, WE DID, IN A GENERAL SENSE, WHAT THE FAGERSTROM DEPENDENCE QUESTIONNAIRE IS.
AND I THINK YOU INDICATED THAT A SCALE GREATER THAN SEVEN INDICATES THAT A PERSON IS HIGHLY DEPENDENT OR HIGHLY ADDICTED?
A. YES.
Q. CAN YOU STEP DOWN AND GIVE US THE INFORMATION WITH RESPECT TO LESLIE WHITELEY AS TO HOW YOU WOULD RATE HER ON THIS SCALE.
A. I'LL JUST PUT THE NUMBER OF POINTS DOWN NEXT TO EACH ONE, BASED ON WHAT THE SCALE SAYS, WHAT THE CODE SAYS.

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SO THE FIRST ONE IS: "HOW SOON AFTER YOU WAKE UP IN THE MORNING DO YOU SMOKE YOUR FIRST CIGARETTE?"

MS. WHITELEY SAID SHE SMOKED IMMEDIATELY WHEN SHE WOKE UP. SO THAT WOULD GIVE HER ONE POINT.

THE NEXT QUESTION IS IF SHE FOUND IT DIFFICULT TO REFRAIN FROM SMOKING IN PLACES WHERE IT IS FORBIDDEN.

SHE SAID THAT WHEN SHE WAS IN SUCH A PLACE, SHE'D HAVE TO GO OUTSIDE A PLACE. SO THAT WOULD GIVE HER A ONE POINT FOR A YES.

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WHEN SHE WAS ASKED WHICH CIGARETTE SHE WOULD HATE MOST TO GIVE UP, SHE SAID THE FIRST THING IN THE MORNING, WHICH WOULD GIVE HER A ONE; ONE POINT.

HOW MANY CIGARETTES PER DAY? SHE SMOKED ON AVERAGE ABOUT A PACK A DAY, ALTHOUGH SOMETIMES A PACK AND A HALF.

THE CUTOFF, 16 TO 25 CIGARETTES, WHICH WOULD BE A PACK, WOULD BE A ONE. A 26 OR MORE WOULD BE A TWO. SO SOMETIMES SHE SMOKED ONE AND SOMETIMES TWO.

AND SO I GAVE HER ONE TO TWO POINTS. DEPENDING ON WHEN IN HER LIFE SHE HAD SMOKED, SHE GOT ONE OR THE OTHER.

THE QUESTION ABOUT DOES SHE SMOKE MORE FREQUENTLY DURING THE FIRST HOURS AFTER AWAKENING AND SHE SAID YES. THE ANSWER IS YES. THAT WOULD GIVE HER A ONE.

DO YOU SMOKE IF ILL? WHEN SHE WAS ASKED ABOUT THIS, SHE SAID IF SHE GOT A COLD OR IF SHE GOT SICK, SHE WOULD CONTINUE TO SMOKE. THAT WOULD GIVE HER A ONE.

THE NEXT QUESTION IS: NICOTINE LEVEL OF THE USUAL BRAND OF CIGARETTES?

THIS DEPENDED ON WHEN SHE WAS SMOKING MARLBORO -- DEPENDING ON WHEN SHE WAS SMOKING, IT COULD BE BETWEEN ONE AND 1.2, WHICH WOULD GIVE HER A ONE.

IT'S HARD TO KNOW, BECAUSE IT VARIED FROM TIME TO TIME. SO HER SCORE COULD BE A ZERO, ONE OR TWO, DEPENDING ON WHICH CIGARETTE SHE SMOKED. SO I JUST GAVE HER AN AVERAGE OF A ONE FOR THAT.

"DO YOU INHALE?"

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SHE SAID SHE ALWAYS INHALED, WHICH WAS A TWO.

AND THEN, IF YOU ADD THESE UP, IT'S 2, 3, 4, 5, 6, 7, 8, 9 OR 10. SO SHE WOULD HAVE 9 OR 10 OUT OF A POSSIBLE 11.

SO ON THIS SCALE, SHE RATES VERY HIGH FOR DEPENDENCE.

Q. THANK YOU, DR. BENOWITZ.

NOW, ARE THERE SOME OTHER TESTS OR CRITERIA THAT HAVE BEEN PUBLISHED THAT APPLY TO DEPENDENCE OR ADDICTION IN ADDITION TO THIS FAGERSTROM?

A. THE OTHER ONE THAT HAS BEEN DISCUSSED AND HAS BEEN USED IN SOME RESEARCH IS WHAT ARE CALLED THE DSM, WHICH IS THE DIAGNOSTIC STATISTICAL MANUAL. THE MOST RECENT VERSION IS IV, DSM-IV.

THESE ARE CRITERIA DEVELOPED BY THE AMERICAN PSYCHIATRIC ASSOCIATION, AND BASICALLY, FOR PSYCHIATRIC DIAGNOSES.

BUT THERE IS ONE SET OF CRITERIA FOR SUBSTANCE ABUSE THAT HAS BEEN USED BY SOME RESEARCHERS TO TRY TO ASSESS THE PREVALENCE OF NICOTINE ADDICTION. THERE ARE PROBLEMS WITH IT AND SO IT'S NOT WIDELY USED.

Q. LET'S TALK ABOUT, FIRST OF ALL, WHAT THE DSM-IV REQUIRES FOR SUBSTANCE ABUSE, AND THEN WE CAN GO INTO WHY THESE THINGS ARE PROBLEMS.

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A. THE MAIN CRITERIA IS THERE MUST BE:
"A MALADAPTIVITY PATTERN OF SUBSTANCE USE,
LEADING TO CLINICALLY SIGNIFICANT IMPAIRMENT OR
DISTRESS, AS MANIFESTED BY THREE OR MORE OF THE

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FOLLOWING." AND THEY HAVE A LIST OF CRITERIA.
Q. LET'S FIRST TRY TO UNDERSTAND THAT. THERE'S A LOT OF WORDS THERE.
WHAT DOES THAT MEAN?
A. WELL, "A MALADAPTIVE OF PATTERN OF SUBSTANCE USE" MEANS A USE PATTERN THAT IS CAUSING INJURY OR CAUSING A PERSON TO FUNCTION NOT NORMALLY. THIS SAYS "CLINICALLY SIGNIFICANT IMPAIRMENT OR DISTRESS."
AND IN THE FIRST PLACE, IF YOU PUT ASIDE CAUSING ILLNESS IN THE FUTURE, THESE GENERAL CRITERIA DON'T APPLY TO MANY SMOKERS, ESPECIALLY EARLY ON WHEN THEY START SMOKING, BECAUSE THEY DON'T FEEL SICK. THEY'RE NOT INTOXICATED. INTOXICATION IS SOMETHING WHICH MANY OTHER DRUGS OF ABUSE DO CAUSE.
OBVIOUSLY, IF YOU ARE INTOXICATED, YOU CAN'T DO YOUR JOB. YOU CAN'T FUNCTION PROPERLY. BUT YOU DON'T GET LOADED FROM CIGARETTES. YOU DON'T HAVE DT'S WHEN YOU STOP SMOKING THEM.
SO MANY SMOKERS FOR MANY YEARS REALLY DO NOT HAVE DISABILITY FROM THE DRUG USE, WHICH YOU ALWAYS SEE WITH A CHRONIC ALCOHOLIC OR HEROIN ADDIT OR COCAINE ADDICT.
SO RIGHT FROM THE BEGINNING, IT'S NOT REALLY RELEVANT, THIS PART OF IT, FOR SMOKING.
NOW, THEY DO HAVE SOME SPECIFIC CRITERIA, AND SOME OF THOSE ARE RELEVANT AND SOME AREN'T.
Q. LET TALK ABOUT THOSE.
WHAT IS THE CRITERIA?
A. WELL, THERE ARE SEVEN MAIN CRITERIA.

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THE FIRST ONE IS TOLERANCE. AND THIS IS DEFINED IN ONE OF TWO WAYS. THE FIRST ONE IS: "A NEED FOR MARKEDLY INCREASED AMOUNTS OF THE SUBSTANCE TO ACHIEVE INTOXICATION OR DESIRED EFFECT."
Q. NOW, WHAT DOES THAT MEAN?
A. WELL, IT MEANS THAT A PERSON HAS TO USE MORE AND MORE TO GET WHATEVER EFFECT THAT THEY WANT.
THIS IS ALSO TRUE FOR SMOKERS, BUT IT'S OFTEN ASKED IN A WAY THAT SEEMS NOT TO BE TRUE.
Q. MEANING WHAT?
A. IT'S TRUE, A SMOKER -- WHEN A PERSON STARTS SMOKING THE FIRST CIGARETTE, PEOPLE GET SICK. THEY HAVE PROBLEMS WITH IT, AND IT TAKES TIME TO BUILD UP.
USUALLY, IT TAKES SEVERAL YEARS TO BUILD UP FROM YOUR FIRST CIGARETTE TO WHEN YOU'RE SMOKING WHAT YOU SMOKE, 10 OR TWO TIMES A DAY TO BUILD UP. IF YOU TRY TO SMOKE 10 OR 20 CIGARETTES A DAY IN THE FIRST WEEK, YOU'D BE TOTALLY SICK.
SO TOLERANCE IS OCCURRING. IF YOU ASK A SMOKER WHO HAS BEEN SMOKING FOR 20 YEARS, "HAVE YOU USED THE AMOUNT OF YOUR SUBSTANCE USE IN THE PAST YEAR TO GET THE DESIRED EFFECT," THEY SAY BECAUSE THEY HAVEN'T.
Q. BECAUSE THEY HAVE BEEN SMOKING THE TWO PACK OR ONE PACK A DAY, WHICH KEEPS THEIR NICOTINE LEVEL AT A CONSTANT?
A. THEY DEVELOPED TOLERANCE, WITHOUT QUESTION.
BUT THE WAY THIS QUESTION IS SET UP, IT DOESN'T ASK IT THE RIGHT WAY.

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SO SOMETIMES THIS QUESTION IS ASKED OF SMOKERS AND IT WOULD BE RATED NO.

IN FACT, FOR SOMEONE WHO IS A REGULAR SMOKER FOR MANY YEARS, THE ANSWER IS YES.

Q. FOR EXAMPLE, FOR LESLIE WHITELEY, IF ASKED IN THE MANNER THAT YOU JUST DESCRIBED, WHAT WOULD THE ANSWER BE?

A. YES, SHE DEFINITELY HAS TOLERANCE.

Q. WHEN SHE STARTED OUT, SHE DIDN'T START SMOKING 20 CIGARETTES A DAY, DID SHE?

A. THAT IS CORRECT.

Q. SHE STARTED OUT WITH ONE OR TWO?

A. YES.

Q. BY THE TIME SHE FINISHED HIGH SCHOOL, ABOUT HOW MUCH WAS SHE SMOKING?

A. I THINK SHE WAS SMOKING 10 OR SO, ABOUT HALF A PACK PER DAY.

AND THEN, SHORTLY THEREAFTER, SHE INCREASED IT TO ABOUT A PACK A DAY.

THIS SECOND CRITERION IS EXPERIENCING WITHDRAWAL SYMPTOMS. THAT MEANS: "DO YOU HAVE SOME DISTURBING SYMPTOMS WHEN YOU STOP USING A DRUG?"

AND IN FACT, SHE DID HAVE THOSE, AND SHE WOULD BE RATED YES.

AND SHE TRIED TO QUIT ON A VACATION WITH HER HUSBAND ONE TIME. SHE HAD CLASSIC WITHDRAWAL SYMPTOMS.

WHEN SHE ULTIMATELY QUIT SMOKING WHEN SHE WAS DIAGNOSED WITH LUNG CANCER, WHEN SHE HAD SEVERE BRONCHITIS, SHE QUIT. SHE HAD SYMPTOMS THAT WERE QUITE CONSISTENT. SHE

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HAD WITHDRAWAL.

Q. WHEN YOU SAY "SYMPTOMS THAT WERE QUITE CONSISTENT," WHAT SYMPTOMS?

A. SHE WAS IRRITABLE. SHE COULDN'T CONCENTRATE. SHE WAS ARGUING WITH HER HUSBAND A LOT. SHE HAD INTENSE CRAVINGS FOR CIGARETTES.

Q. DOES DIZZINESS FALL INTO THAT AS WELL?

A. DIZZINESS WOULD. SLEEP PROBLEMS. THEY ALL ARE A PART OF IT. SHE HAD THAT.

THE THIRD ONE -- THE THIRD CRITERION IS: "THE SUBSTANCE OFTEN IS TAKEN IN LARGER AMOUNTS OR OVER A LONGER PERIOD OF TIME THAN WAS INTENDED."

Q. NOW, WHAT DOES THAT MEAN?

A. WELL, THIS ONE IS MEANT TO SAY, FOR A CHRONIC ALCOHOLIC, A PERSON INTENDS TO HAVE ONE DRINK OR TWO DRINKS A DAY AND WHEN THEY START DRINKING, THEY CAN'T CONTROL IT. AND PRETTY SOON, THEY'RE DRINKING ALL DAY LONG. THEN THEY'RE OBVIOUSLY DRINKING MORE THAN WHAT THEY INTENDED.

SMOKERS. MOST SMOKERS DON'T THINK IN THIS WAY, THAT THEY THINK THAT THEY'RE SMOKING, YOU KNOW, A CERTAIN AMOUNT. SO THEY DON'T INTEND TO SMOKE A CERTAIN AMOUNT.

SO THIS QUESTION IS NOT RELEVANT TO SMOKERS. AN ALCOHOLIC CAN SAY, "I TRY TO CUT DOWN AND I CAN'T. I CAN'T CUT DOWN AS MUCH AS I'D LIKE."

SO FOR MOST SMOKERS, THIS IS NOT A REGULAR QUESTION.

Q. IS IT ONLY ON A PER-DAY BASIS OR IS IT ALSO A LENGTH OF TIME?

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I MEAN, ARE THERE SMOKERS WHO THINK, "WELL, YOU KNOW, I'LL SMOKE WHEN I'M YOUNG, AND THEN WHEN I GET OLDER, I'LL QUIT"?

A. IF YOU LOOK AT IT THAT WAY, THEN MOST SMOKERS MEET THIS CRITERION, YES. BECAUSE IF YOU DO INTERVIEW KIDS

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WHEN THEY START SMOKING -- THIS HAS BEEN DONE IN A SYSTEMATIC WAY. IT'S BEEN REPORTED IN SURGEON GENERAL'S REPORTS.

MOST KIDS, WHEN THEY START SMOKING, WILL SAY, "I'M GOING TO SMOKE FOR A FEW YEARS. I'M GOING TO SMOKE WITH MY FRIENDS. I'M GOING TO SMOKE IN A SOCIAL SITUATION."

THEY DON'T START OUT ADDICTED. THEY START OUT SMOKING WITH A FRIEND OR SMOKING TO BE REBELLIOUS, TO MAKE A STATEMENT OR WHATEVER REASON. THEY DON'T BECOME ADDICTED FOR SOME TIME.

BUT THE KIDS SAY: "IN FIVE YEARS, I'M NOT GOING TO BE SMOKING." BUT IF THEY ARE SURVEYED AGAIN FIVE YEARS LATER, THE VAST MAJORITY OF THEM ARE SMOKING MORE, AND DEFINITELY ARE SAYING, "I WANT TO QUIT."

IF YOU WANT TO LOOK AT IT FROM THE BEGINNING OF A SMOKER'S CAREER, VERY OFTEN, PEOPLE SMOKE MORE THAN THEY INTEND.

THE WAY DSM IS SET UP, THEY ASK, WITHIN THE 12 MONTHS. IF YOU WANT TO GO BACK TO LOOK AT THE BEGINNING OF SMOKING, THIS IS TRUE FOR MANY SMOKERS.

Q. WHAT'S NEXT?

A. THE NEXT ONE IS: "A PERSISTENT DESIRE OR UNSUCCESSFUL EFFORTS TO CUT DOWN OR CONTROL SUBSTANCE USE."

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Q. WHAT DOES THAT MEAN?

A. THAT MEANS THAT YOU WOULD LIKE TO QUIT AND YOU CAN'T OR YOU TRIED TO QUIT AND YOU CAN'T.

AND HERE, FOR LESLIE WHITELEY, IT DEPENDS HOW YOU ASK THE QUESTION. SO CERTAINLY SHE HAD ONE ATTEMPT WHERE SHE TRIED TO QUIT FOR AS LONG AS TWO WEEKS AND FAILED.

INTERVIEW COMMENTS IN DEPOSITION FROM SOME FAMILY MEMBERS SAID THAT SHE OFTEN TOLD THEM THAT SHE WOULD LIKE TO QUIT SMOKING AND COULDN'T, OR THAT SHE MADE A SHORT RESOLUTION THAT SAID, "I'M NOT GOING TO SMOKE ANYMORE," BUT IT LASTED AN HOUR OR TWO ONLY AND SHE COULDN'T.

SO I THINK THIS WOULD BE INTERPRETED ALSO AS SOMETHING THAT SHE -- A CRITERION SHE WOULD MEET.

Q. WHAT ELSE?

A. THE NEXT ONE IS: "A GREAT DEAL OF TIME IS SPENT IN ACTIVITIES NECESSARY TO OBTAIN THE SUBSTANCE, USE THE SUBSTANCE, OR RECOVER FROM ITS EFFECTS."

Q. NOW, WHAT DOES THAT MEAN?

A. WELL, IN A CLASSIC SENSE, IF YOU WANT TO LOOK AT, SAY, HEROIN OR COCAINE, SOMEONE HAS TO GO OUT AND STEAL FROM SOMEBODY'S HOUSE TO GET MONEY FOR DRUGS. THAT'S SORT OF THE CLASSIC DEFINITION.

MOST SMOKERS, IF YOU ASK THEM THIS QUESTION, WOULDN'T RESPOND POSITIVELY, BECAUSE YOU DON'T NEED TO DO VERY MUCH TO GET CIGARETTES. YOU GO DOWN TO THE STORE. YOU DON'T NEED TO SPEND A LOT OF TIME TO GET THEM.

WHAT SMOKERS DO, WHICH I THINK IS COMPATIBLE TO THE INTENT OF THIS QUESTION: DOES A DRUG USER ENSURE THAT

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THE DRUG SUPPLY IS ALWAYS THERE?

AND THE SMOKER WILL ALWAYS MAKE SURE THAT THE CIGARETTES ARE ON THE NIGHTSTAND BEFORE GOING TO BED FOR THE CIGARETTE THE FIRST THING IN THE MORNING. IF NOT, THEY'LL GO OUT AND BUY CIGARETTES IN THE MIDDLE OF THE NIGHT, BUT THEY'RE VERY CAUTIOUS TO ALWAYS MAKE SURE THE CIGARETTES ARE THERE.

SO THAT IF YOU LOOK AT THE INTENT OF THIS QUESTION AND YOU PHRASE IT IN THE WAY THAT'S PERFECT FOR SMOKERS, THEN IT WOULD BE POSITIVE FOR LESLIE WHITELEY AS

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WELL.

Q. HOW ABOUT SOMEBODY WHO TAKES THEIR LUNCH MONEY -- HOW ABOUT IF THE QUESTION IS: "USES THEIR LUNCH MONEY TO STOP OFF ON THE WAY TO SCHOOL AT A VENDING MACHINE AND PICK UP CIGARETTES"; WOULD THAT FALL INTO THAT CATEGORY?

A. YES.

THE NEXT CRITERION IS: "IMPORTANT SOCIAL, OCCUPATIONAL, OR RECREATIONAL ACTIVITIES ARE GIVEN UP OR REDUCED BECAUSE OF SUBSTANCE USE."

Q. NOW, WHAT DOES THAT MEAN?

A. THIS MEANS, IF YOU ARE USING DRUGS, YOU CAN'T DO SOCIAL OBLIGATIONS, YOU CAN'T DO YOUR JOB RIGHT, OR BE INVOLVED IN RECREATIONAL ACTIVITIES.

THIS IS MUCH MORE TRUE FOR DRUGS THAT ARE INTOXICATING -- YOU JUST CAN'T DO THESE THINGS -- THAN IT IS FOR CIGARETTES. MOST PEOPLE CAN DO CIGARETTES, DO SOCIAL ACTIVITIES AND THEIR JOB. SOME PEOPLE CAN'T DO RECREATIONAL. IF THEY WANT TO DO SPORTS, THEY GET TOO SHORT

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OF BREATH.

THIS CRITERION, I DIDN'T SEE EVIDENCE THAT LESLIE WHITELEY WOULD MEET THIS. BUT THIS IS NOT A GOOD QUESTION FOR SMOKERS. IT'S REALLY INTENDED MORE FOR OTHER DRUG USERS THAN SMOKERS.

Q. WHY ISN'T IT A GOOD QUESTION FOR SMOKERS?

A. BECAUSE WHAT THIS IS REALLY LOOKING FOR IS INTOXICATION, IMPAIRMENT OF LIFE ACTIVITIES BECAUSE OF INTOXICATION.

AND SMOKERS DON'T GET INTOXICATED FROM CIGARETTES.

Q. THEY DO SOMETIMES AVOID, SAY, RESTAURANTS THAT DON'T ALLOW SMOKING, FOR EXAMPLE?

A. THEY CAN. THEY CAN DO THAT.

AND CERTAINLY, SOME PEOPLE MIGHT SELECT OR NOT SELECT A JOB DEPENDING ON WHAT SMOKING RESTRICTIONS ARE THERE. IT COULD BE RELEVANT.

Q. BUT GENERALLY, IT'S NOT?

A. BUT GENERALLY, IT'S MUCH MORE RELATED TO OTHER DRUGS.

Q. WHAT ELSE?

A. AND THEN THE LAST ONE IS: "THE SUBSTANCE USE IS CONTINUED DESPITE KNOWLEDGE OF HAVING HAD A PERSISTENT OR RECURRENT PHYSICAL OR PSYCHOLOGICAL PROBLEM THAT IS LIKELY TO HAVE BEEN CAUSED OR EXACERBATED BY THE SUBSTANCE."

Q. AND WHAT DOES THAT MEAN?

A. WHICH MEANS IT'S DOING SOMETHING BAD TO YOU, EITHER PHYSICALLY OR PSYCHOLOGICALLY, AND YOU STILL USE THE

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PRODUCT.

Q. AND HOW DOES THAT WORK WITH RESPECT TO NICOTINE?

A. WELL, HERE IS WHEN, IF YOU HAVE SYMPTOMS, SAY, OF A BAD COUGH, AND YOU THINK IT'S FROM SMOKING, YOU WANT TO STOP. YOUR DOCTOR SAYS, "YOU SHOULD STOP SMOKING," AND YOU'D LIKE TO STOP, BUT YOU CAN'T.

AND THAT IS LESLIE WHITELEY. SHE WANTED TO -- WELL, SHE WAS CERTAINLY ADVISED BY DOCTORS TO STOP. SHE TRIED TO STOP ONCE ON HER OWN. I THINK SHE WAS CONCERNED ABOUT THE ISSUES OF SMOKING AROUND HER CHILDREN AND THOUGHT SHE SHOULD STOP BUT COULDN'T.

SO THERE WERE SOME PROBLEMS THAT SHE RECOGNIZED AND STILL COULDN'T STOP. SO I THINK SHE COULD MEET THIS, ACCORDING TO HOW IT'S ASKED.

Q. ALL RIGHT. AND IS THAT THE CRITERION?

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A. YES.
Q. AND IS THAT WHAT YOU GENERALLY USE IN YOUR RESEARCH OR AS A PROFESSOR OF PSYCHIATRY AT SAN FRANCISCO --
A. NO. I DON'T USE THE DSM-IV, BECAUSE THE WAY THE QUESTIONS ARE SET UP -- THE PRINCIPLES ARE VALID. YOU ARE LOOKING AT TOLERANCE, WITHDRAWAL SYMPTOMS, THE COST OF USING, TROUBLE QUITTING. THE PRINCIPLES ARE VALID.
BUT THE QUESTIONS ARE NOT SET UP IN THE RIGHT WAY. I THINK WHAT ONE COULD DO -- I HAVE NOT TRIED TO DO THIS, BUT YOU COULD TAKE THE SAME PRINCIPLES BEHIND EACH QUESTION, REWRITE THE QUESTION THAT'S RELEVANT TO NICOTINE ADDICTION.

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AND IT'S NOT BEEN DONE, BECAUSE THE QUESTIONS ARE TOUGH FOR SMOKERS TO UNDERSTAND. I DON'T USE THIS.
Q. AND YOU INSTEAD WOULD RELY ON THE FAGERSTROM DEPENDENCE QUESTIONNAIRE?
A. YES.
Q. NOW, THERE WAS INFORMATION PROVIDED TO YOU AT VARIOUS TIMES THAT LESLIE WHITELEY HAD USED OTHER DRUGS?
A. YES.
Q. AND HAS IT BEEN LOOKED AT AS TO THE COMPARISON OF HOW HARD IT IS TO GIVE UP DIFFERENT DRUGS?
A. YES.
Q. AND CAN YOU EXPLAIN A LITTLE BIT ABOUT THAT?
A. WELL, IT'S BEEN LOOKED AT IN A COUPLE OF WAYS. ONE WAY IS TO LOOK AT QUITTING RATES OF PEOPLE WHO TRY AND GIVE UP DRUG USE.
AND AS I SAID, IF YOU LOOK AT PEOPLE IN TREATMENT CLINICS, THE RATES FOR GIVING UP HEROIN, ALCOHOL AND TOBACCO ARE SIMILAR.
IF YOU TAKE ANOTHER APPROACH AND YOU SURVEY DRUG ABUSERS OF MULTIPLE DRUGS, PEOPLE WHO USE ALCOHOL, OTHER DRUGS AND TOBACCO. ACTUALLY, MOST PEOPLE WHO USE DRUGS ALSO SMOKE CIGARETTES. IF YOU ASK THEM: "WHICH DRUG DO YOU THINK WOULD BE THE HARDEST TO GIVE UP," THE MAJORITY SAY SMOKING IS THE HARDEST ONE TO GIVE UP.
EVEN THOUGH SMOKING DOESN'T CAUSE LIFE-THREATENING WITHDRAWAL SYMPTOMS, BUT SMOKING IS SOMETHING THAT IS MOST IMPORTANT FOR MANAGING THEIR LIVES, THEY FEEL.

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SO EVEN MULTIPLE -- MULTIDRUG USERS, POLIDRUG USERS WILL IDENTIFY SMOKING AS THE HARDEST OF ALL THE DRUGS TO GIVE UP.
Q. YOU'VE SEEN EVIDENCE IN THE MATERIALS THAT YOU WERE PROVIDED THAT LESLIE WHITELEY SMOKED MARIJUANA?
A. YES.
Q. AND DO MOST MARIJUANA SMOKERS ALSO SMOKE CIGARETTES?
A. I DON'T KNOW THE EXACT NUMBERS. A LOT DO. IT'S NOT AS HIGH -- IF YOU LOOK AT HEROIN USERS, COCAINE USERS, 90 PERCENT USE CIGARETTES.
FOR MARIJUANA, THE FIGURES ARE PROBABLY LOWER THAN THAT, BUT I DON'T KNOW THE EXACT NUMBERS.
Q. AND WITH RESPECT TO ALCOHOL, IS THERE ANY CORRELATION BETWEEN ALCOHOL USE AND CIGARETTE SMOKING?
A. YES, THERE IS.
Q. AND WHAT IS THAT?
A. WELL, PROBABLY 90 PERCENT OR MORE OF PEOPLE WHO USE ALCOHOL FREQUENTLY ARE ALSO SMOKERS.
Q. AND LET'S TALK ABOUT THE POTENTIAL FOR MARIJUANA

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TO CAUSE LUNG CANCER.
IS THERE A POTENTIAL FOR MARIJUANA TO CAUSE USE LUNG CANCER?
A. YES, I THINK THERE IS.
Q. OKAY. AND TELL US WHY.
A. WELL, THE THING IS, IF YOU START FIRST WITH TOBACCO, WHAT CAUSES CANCER IN TOBACCO IS NOT THE NICOTINE. IT'S THE PRODUCT OF COMBUSTION.

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ORGANIC MATERIAL, WHEN YOU COMBUST, JUST LIKE WHEN YOU BARBECUE AT YOUR HOUSE, IT GENERATES TARS, WHICH HAS GOT THOUSANDS OF CHEMICALS IN IT. THESE CHEMICALS CONTAIN A LOT OF SUBSTANCES, CHEMICALS THAT CAUSE CANCER, CAN INITIATE CANCER, CAN PROMOTE CANCER, WHICH MEANS ONCE CANCER IS STARTED, IT MAKES IT PROCEED FASTER OR MORE EFFECTIVELY.
SO THERE ARE A NUMBER OF CANCER-CAUSING CHEMICALS IN TOBACCO SMOKE AND IN THE SMOKE OF ANY ORGANIC MATERIAL WHEN THAT GETS BURNED.
NOW, FOR TOBACCO, THERE ARE OTHER CHEMICALS THAT ARE SPECIFIC TO TOBACCO. FOR EXAMPLE, NITRATES ARE USED IN TOBACCO AS PART OF THE CURING PROCESS.
Q. WHAT DO YOU MEAN "THE CURING PROCESS"?
A. WELL, WHEN YOU AGE TOBACCO, WHEN IT'S CURED IN A CERTAIN WAY, THERE IS A CERTAIN AMOUNT OF NITRATE WHICH IS ADDED TO IT. IT ALSO AFFECTS THE YIELDS ON GIVEN SMOKING MACHINE TESTS.
FOR EXAMPLE, NITRATES CAN LOWER THE TAR YIELDS AND CAN MAKE A CIGARETTE LOOK LIKE A LOWER-YIELD TAR CIGARETTE.
BUT NITRATES WITH NICOTINE LEAD TO A NICOTINE-RELATED NITROSAMINE CALLED A TOBACCO-SPECIFIC NITROSAMINE, WHICH IS A VERY POTENT CARCINOGEN, A CANCER-CAUSING SUBSTANCE THAT CAN CAUSE LUNG CANCER.
AND THIS IS PRESENT IN TOBACCO BECAUSE NICOTINE AND NITRATES ARE THERE. IF YOU GO TO MARIJUANA, MARIJUANA HAS GOT THINGS THAT ARE UNIQUE TO IT. IT'S GOT THC OR

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TETRAHYDROCANNABINOL, WHICH IS THE PSYCHOACTIVE SUBSTANCE IN MARIJUANA.
Q. AND THAT'S NOT IN CIGARETTES?
A. NOT IN CIGARETTES.
Q. WHAT IS THE PSYCHOACTIVE SUBSTANCE IN CIGARETTES?
A. IN CIGARETTES, IT'S NICOTINE, AND IN MARIJUANA IT'S WHAT'S CALLED THC.
Q. OKAY.
A. AND THERE ARE OTHER THC-RELATED SUBSTANCES TOO.
THE BASIC ORGANIC MATERIAL, THE LEAF MATERIAL GETS COMBUSTED IN A WAY THAT'S SIMILAR TO THAT OF CIGARETTE SMOKE.
SO YOU GENERATE THE SAME MIXTURES OF CARCINOGENS AND THINGS WHICH CAN CAUSE CANCER. SO YOU CAN GET TAR. AND SO THE SMOKE FROM A MARIJUANA CIGARETTE AND TOBACCO CIGARETTE BOTH CONTAIN CARCINOGENS. AGAIN, THEY'RE BOTH INHALED IN THE LUNGS.
AND THE QUESTION OF GETTING CANCER IS REALLY A QUESTION OF DOSING.
Q. WHAT DO YOU MEAN BY THAT?
A. WELL, A CIGARETTE SMOKER SMOKES 10 OR MORE CIGARETTES PER DAY, AND THEY SMOKE EVERY DAY, AND THEY SMOKE IT FOR YEARS AND YEARS AND YEARS.
MOST MARIJUANA SMOKERS SMOKE AN OCCASIONAL MARIJUANA CIGARETTE. THEY GENERALLY SHARE A CIGARETTE OR

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THEY SMOKE FROM A PIPE AND THEY SHARE A PIPE.
AGAIN, MOST SMOKERS OF MARIJUANA DON'T SMOKE EVERY DAY. A FEW DO, BUT MOST DON'T.

SO THE EFFECTIVE DOSE -- ALTHOUGH WHAT THEY TAKE IN IN THEIR LUNG COULD BE CARCINOGENS, THE EFFECTIVE DOSE IS REALLY VERY SMALL COMPARED TO THE DOSE OF TARS IN CANCER-CAUSING SUBSTANCES FROM SMOKING A PACK OR A PACK AND A HALF OF CIGARETTES A DAY.
NOW, IT IS TRUE THAT THE AMOUNT OF TAR GENERATED PER MARIJUANA CIGARETTE IS DIFFERENT THAN A TOBACCO CIGARETTE.
AND THE REASON IS THAT A TOBACCO CIGARETTE IS MORE REFINED TOBACCO. THERE ARE FILTERS IN THERE. AND SO IT'S SET UP IN A WAY TO TRY TO REDUCE THE TAR.
IF YOU SMOKE A MARIJUANA CIGARETTE, IT'S BEEN ESTIMATED THAT THERE'S PROBABLY FOUR TIMES OR SO MORE TAR GENERATED IN A SINGLE MARIJUANA CIGARETTE THAN A SINGLE TOBACCO CIGARETTE.
Q. OKAY.
A. SO SMOKING MARIJUANA CIGARETTES MIGHT BE WORSE IF YOU SMOKED A WHOLE CIGARETTE AND IF YOU SMOKE ANYTHING LIKE SMOKING TOBACCO CIGARETTES.
THERE ALSO SEEMS TO BE SOME DIFFERENCE OR A LITTLE BIT BETWEEN THE TAR IN MARIJUANA CIGARETTES AND TOBACCO CIGARETTES.
Q. AND IN WHAT WAY?
A. WELL, SOME CARCINOGENS ARE HIGHER IN MARIJUANA CIGARETTES. THERE'S A CLASSIC CLASS OF CARCINOGENS CALLED POLYCYCLIC HYDROCARBONS THAT ARE HIGHER IN MARIJUANA.
OTHER ONES IN TOBACCO, LIKE NITROSAMINES, THE TOBACCO-SPECIFIC NITROSAMINES ARE HIGHER IN TOBACCO. THEY

ARE NOT PRESENT IN MARIJUANA AT ALL.
IF YOU DO TESTING FOR DIRECT CANCER-CAUSING ABILITY, AND THE FIRST TEST FOR TOBACCO SMOKE WAS ACTUALLY TO TAKE A MOUSE -- TO TAKE MICE AND TO PAINT TOBACCO TAR ON THE MOUSE, AND IT ACTUALLY CAUSES SKIN CANCER.
AND THE MICE DIE FROM CANCER WHEN THE STUDIES WERE DONE COMPARING TOBACCO TAR.
Q. THAT WAS DONE WHEN? YOU SAY "THE FIRST STUDIES."
THAT WAS DONE WAY BACK IN THE 1950S?
A. RIGHT. THAT WAS DONE, THAT SORT OF A STUDY TEST. AND THEN MORE RECENTLY, WHEN MARIJUANA TAR AND TOBACCO TAR HAVE BEEN COMPARED, THEY BOTH CAN CAUSE SKIN CANCER.
BUT INTERESTINGLY, TOBACCO TAR CAUSES MANY MORE -- FROM THE SAME AMOUNT OF TAR APPLIED, CAUSES MANY MORE CANCERS AND REDUCED MORTALITY, SUBSTANTIALLY MORE THAN MARIJUANA TAR PRODUCES.
EVEN THOUGH THERE ARE SOME THINGS IN MARIJUANA TAR IN THE MOUSE MODEL OF CANCER, CIGARETTE TAR SEEMS TO BE A MORE POWERFUL CANCER-CAUSING SUBSTANCE.
Q. ARE YOU AWARE OF ANY STUDY THAT HAS ESTABLISHED THAT MARIJUANA ACTUALLY DOES CAUSE LUNG CANCER IN HUMANS?
A. CERTAINLY NOT ESTABLISHED IT. THERE ARE CASE REPORTS, WHICH BASICALLY MEANS THAT THERE ARE INDIVIDUALS WHO HAVE LUNG CANCER WHO HAVE SMOKED MARIJUANA WHERE THERE HAS BEEN A SUGGESTION THAT MARIJUANA HAS CAUSED IT.
THERE'S ONLY ONE EPIDEMIOLOGY STUDY THAT I KNOW

OF THAT'S LOOKED AT LUNG CANCER -- THAT WAS A BIG KAISER

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STUDY -- WHICH DID NOT FIND EVIDENCE THAT MARIJUANA SMOKING CAUSED LUNG CANCER. THAT USED A WIDE RANGE OF USERS AND ASKED A QUESTION: "DO YOU USE MARIJUANA? HAVE YOU EVER USED IT?"

AND MARIJUANA SMOKING WAS NOT A RISK FOR LUNG CANCER WHERE CIGARETTES WAS THE USUAL RISK FOR LUNG CANCER.

SO I THINK IT'S POSSIBLE. I THINK, IN GENERAL, MARIJUANA IS NOT A BIG FACTOR, BECAUSE THE WAY MOST PEOPLE USE IT, THEY JUST DON'T USE ENOUGH TO DELIVER THE TOTAL CARCINOGENIC DOSE.

IT'S REALLY SORT OF HOW MUCH CARCINOGENS DO YOU PUT IN YOUR LUNGS FROM MARIJUANA VERSUS TOBACCO? AND IT'S JUST NOT EVEN CLOSE.

Q. AND EVEN IF IT WERE CLOSE, WOULD THIS BE MUTUALLY EXCLUSIVE? IF YOU HAD AN INDIVIDUAL WHO SMOKED MARIJUANA AND YOU HAD AN INDIVIDUAL WHO SMOKED CIGARETTES, THAT THESE ARE MUTUALLY EXCLUSIVE; ONLY ONE OF THEM WOULD BE A CAUSE OF THE CANCER?

A. NO. YOU WOULD -- SINCE THEY BOTH CONTAIN THE SAME SORT OF SUBSTANCES AND WOULD BE EXPECTED TO PRODUCE CANCER IN THE SAME WAY, YOU WOULD EXPECT THE CONTRIBUTIONS TO ACT TOGETHER.

SO IF YOU HAD X NUMBER OF POUNDS OF TAR IN YOUR LUNGS FROM CIGARETTES AND X NUMBER OF POUNDS FROM MARIJUANA, THE RISK SHOULD BE THE SUM OF THE TWO.

Q. NOW, YOU HAD SAID SOMETHING ABOUT PROMOTERS AND INITIATORS.

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CAN YOU EXPLAIN THAT?

A. YES. THE CANCER PROCESS IS THOUGHT TO OCCUR WHEN SOME CHEMICAL OR SOME BODY PROCESS CAUSES DAMAGE TO DNA, WHICH IS REALLY THE GENETIC MATERIAL IN THE BODY. IT'S WHAT'S IN CHROMOSOMES. IT MAKES THE PERSON WHO THEY ARE. THE CHEMICALS ARE CARCINOGENS.

THERE ARE ALSO OTHER THINGS, LIKE AGING. BUT CERTAINLY, CARCINOGENS DAMAGE DNA. AND THEN, WHEN THAT DNA GETS DAMAGED, IT HAS AN EFFECT ON THE GROWTH OF THE CELLS, SO THAT THE CELLS BECOME ABNORMAL, AND THEY GROW IN AN UNCONTROLLED WAY, FOR EXAMPLE, AND THEY BECOME CANCEROUS.

THE PROCESS OF CAUSING CANCER INCLUDES A CHEMICAL THAT DAMAGES DNA, AND THEN THAT'S THE INITIATOR.

AND THEN THERE ARE PROMOTER CHEMICALS, WHICH FACILITATE OR ENHANCE THE GROWTH OF THE TUMOR AFTER IT'S INITIATED. AND THERE ARE SOME SORTS OF CHEMICALS THAT DON'T INITIATE CANCER, BUT ONCE CANCER IS INITIATED, PROMOTE CANCER.

AND TOBACCO IS A VERY COMPLETE CARCINOGEN BECAUSE IT INCLUDES BOTH.

Q. IT BOTH STARTS CANCER AND THEN, IF CANCER IS THERE, MAKES IT GROW?

A. RIGHT.

Q. NOW, IS THERE ANYTHING ABOUT CIGARETTES IN THE FORM THAT THEY COME IN, IN PACKAGES, THAT HELP CONTRIBUTE TO THEM BEING A DEPENDENCE-PRODUCING SUBSTANCE?

MR. FURR: OBJECTION, YOUR HONOR. IT'S VAGUE AND AMBIGUOUS.

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THE COURT: SUSTAINED.

MS. CHABER: Q. DOCTOR, HAVE YOU LOOKED AT THE ISSUE OF WHY PEOPLE SMOKE?

A. YES.

Q. WHY DO PEOPLE SMOKE?

A. WELL, ONCE THEY HAVE STARTED SMOKING, THEY

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CONTINUE TO SMOKE TO OBTAIN EFFECTS OF NICOTINE ON THEIR BRAIN AND BODY.

Q. THE STARTING OF SMOKING MAY HAVE OTHER REASONS, BUT ONCE SOMEBODY HAS ACTUALLY BECOME A SMOKER, WHAT IS IT THAT KEEPS THEM SMOKING?

A. THEY ARE SMOKING FOR THE REASONS WE TALKED ABOUT BEFORE, TO GET EFFECTS OF NICOTINE THAT THEY FIND USEFUL, EITHER PLEASURE OR MODULATION OF AROUSAL OR TENSION OR MOOD OR AVOIDING WITHDRAWAL SYMPTOMS THAT OCCUR WHEN THEY DON'T SMOKE.

THOSE ARE ALL EFFECTS OF NICOTINE. AND PEOPLE TEND TO TAKE IN ABOUT THE SAME AMOUNT OF NICOTINE EVERY DAY FOR A SMOKER. PEOPLE DO NOT SMOKE CIGARETTES THAT ARE NICOTINE-FREE. EVEN IF THEY -- I SHOULD SAY, THERE IS A LOT OF BEHAVIOR WITH CIGARETTE SMOKERS THAT'S IMPORTANT FOR PEOPLE WHEN THEY SMOKE CIGARETTES IN A CERTAIN SITUATION.

FOR EXAMPLE, WITH A MEAL. THEY COME TO JUST LOVE CIGARETTES WITH A MEAL. THEY CAN SMELL CIGARETTES, THE TASTE OF CIGARETTES, BUT IT'S ALL CONNECTED TO NICOTINE EFFECTS.

Q. MEANING WHAT?

A. MEANING, IF YOU TAKE OUT NICOTINE, NO MATTER HOW

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MUCH THEY LIKE THE SMELL, HOW MUCH THEY LIKE HANDLING A CIGARETTE, THEY WON'T SMOKE IT, BECAUSE NICOTINE IS REQUIRED TO SUSTAIN THE SMOKING ACTIVITY.

SO EVEN THOUGH THEY LIKE A BUNCH OF DIFFERENT THINGS, SMOKERS SMOKE IN CERTAIN SITUATIONS, WITH ALCOHOL, WITH STRESS, AND AGAIN, THAT MAKES YOU WANT TO SMOKE A CIGARETTE.

BUT IF THERE IS NO NICOTINE, YOU ARE NOT GOING TO SMOKE A CIGARETTE VERY LONG. SO NICOTINE IS REQUIRED. EVEN THOUGH THERE ARE OTHER THINGS THAT MAY TRIGGER SMOKING, NICOTINE IS ULTIMATELY REQUIRED TO KEEP ON SMOKING.

Q. AND IS THIS RELATED AT ALL TO WHAT YOU WERE TALKING ABOUT EARLIER, WHERE YOU WERE TALKING ABOUT GRADUALLY LOWERING THE DOSAGE OF NICOTINE IN CIGARETTES TO HELP PEOPLE QUIT?

A. YES.

Q. AND HOW WOULD THAT WORK?

A. WELL, THE IDEA IS, WHEN I DEVELOPED THIS PROPOSAL, THERE WERE TWO REASONS FOR IT. ONE REASON, THE FIRST REASON WAS REALLY TO MAKE IT SO THAT WHEN KIDS EXPERIMENT WITH TOBACCO, WHICH THEY WILL -- WE KNOW THAT, BECAUSE IT'S A SOCIAL FACILITATOR. IT'S A SIGN OF REBELLION. BECAUSE FOR WHATEVER REASON, PEOPLE WILL SMOKE.

BUT THEN, WHEN THEY WANT TO QUIT THREE OR FOUR YEARS LATER, IF THE CIGARETTE HAS GOT A LOW ENOUGH LEVEL OF NICOTINE, WHEN THEY WANT TO QUIT, THEY'LL BE ABLE TO QUIT.

SO THE FIRST PURPOSE IS TO MAKE CIGARETTES NOT ADDICTIVE, SO THAT YOU COULD SMOKE FOR SOCIAL REASONS, IF

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YOU WANT TO, BUT THEN LATER ON, YOU CAN QUIT, WHEN YOU WANT TO.

THE SECOND THING THAT THIS SORT OF POLICY WOULD DO, THIS WOULD INVOLVE LOWERING NICOTINE LEVELS OVER 10 OR 15 YEARS. AND THE THOUGHT WOULD BE, GRADUALLY, YOU'D WEAN PEOPLE DOWN FROM THEIR DEPENDENCY ON NICOTINE, SO THEIR BODY COULD SORT RESET GRADUALLY TO LOWER LEVELS OF NICOTINE.

THEN, EVENTUALLY, PEOPLE COULD QUIT WHEN THEY WANT TO, WHEN THEIR NICOTINE DEPENDENCE GOT DOWN TO A LOW ENOUGH LEVEL. THAT WOULD BE THE SECOND REASON FOR GRADUAL REDUCTION OF NICOTINE CONTENT OF CIGARETTES.

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THESE WOULD BE THE KINDS OF CIGARETTES WHICH ARE NOT COMMERCIALLY MANUFACTURED.

Q. WHAT DO YOU MEAN, THEY'RE NOT COMMERCIAL CIGARETTES?

A. CURRENTLY, CIGARETTES ARE MARKETED WITH DIFFERENT YIELDS, HIGH YIELDS, FULL FLAVOR CIGARETTES. THERE ARE LOW-YIELD CIGARETTES. THERE ARE LIGHT CIGARETTES. THERE ARE ULTIMATE LIGHTS.

THESE CIGARETTES ACTUALLY ALL HAVE VERY SIMILAR TOBACCO INSIDE THE CIGARETTE, THE SAME AMOUNT OF NICOTINE, THE SAME KIND OF TOBACCO.

WHAT MAKES THEM LOW-YIELD ARE DIFFERENT ENGINEERING CHARACTERISTICS THAT WORK ON THE SMOKING MACHINE TEST.

TO UNDERSTAND WHAT'S LOW-YIELD, YOU HAVE TO UNDERSTAND THAT THE SMOKING MACHINE IS, WHICH IS IT'S A SYRINGE WHICH DRAWS UP A CERTAIN AMOUNT OF SMOKE, 30

1203

MILLILITERS OF SMOKE EVERY TWO SECONDS EVERY MINUTE UNTIL THE CIGARETTE IS BURNED DOWN TO A CERTAIN DISTANCE. THAT'S WHAT GIVES YOU THE RATING THAT YOU SEE ON ADVERTISING FOR A CIGARETTE.

WELL, IT TURNS OUT THAT SMOKERS TAKE BIGGER PUFFS THAN THE MACHINE. THEY TAKE MORE PUFFS, SO THEY GET MUCH MORE SMOKE THAN THE MACHINE.

AND ALSO, A LOT OF LIGHT CIGARETTES HAVE VENTILATION HOLES THAT ALLOW OUTSIDE AIR TO COME IN TO DILUTE THE SMOKE.

AND SMOKERS CAN'T SEE THEM, BUT THEY LEARN THAT IF THEY HOLD THE CIGARETTE IN A CERTAIN WAY, IF THEY PUT IT IN THEIR MOUTH A CERTAIN DISTANCE, THE FLAVOR OF THE CIGARETTES IS BETTER AND IS REALLY BLOCKING THE HOLES.

SO MOST SMOKERS OF LOW-YIELD CIGARETTES GET A MUCH GREATER DOSE OF NICOTINE THAN THE MACHINE WOULD PREDICT. SO THAT'S COMMERCIAL CIGARETTES.

BUT I WOULD HAVE TALKED ABOUT, IN MY PROPOSAL OF CIGARETTES, WHERE YOU ACTUALLY HAVE SUBTRACTED NICOTINE FROM THE TOBACCO AND HAVE LESS AND LESS NICOTINE AVAILABLE. SO YOU CAN'T COMPENSATE FOR IT.

Q. SO YOU CAN'T COMPENSATE?

A. RIGHT. SO YOU DO GRADUALLY HAVE TO WEAN YOURSELF DOWN OVER TIME, BECAUSE YOU JUST CAN'T SMOKE ENOUGH CIGARETTES.

Q. YOU HAD MENTIONED SOMETHING CALLED VENTILATION HOLES.

CAN YOU DESCRIBE WHAT YOU MEAN BY THAT?

1204

A. YES.

Q. MAYBE YOU CAN DRAW A PICTURE?

A. I'LL DRAW TWO CIGARETTES. (PREPARING DRAWING)

THIS IS A FILTER. AND THIS IS THE TOBACCO ROD, AND THAT'S WHERE THE SMOKE COMES OUT. THIS IS THE SMOKER'S MOUTH.

Q. AND THE OTHER END IS THE BURNING END, SO THAT THE SMOKE THERE IS WHAT? THAT WOULD BE THE SIDE-STREAM SMOKE?

A. THIS IS LIKE SIDE-STREAM.

SO A STANDARD CIGARETTE TEST WOULD BE A CIGARETTE WHERE THE SYRINGE OR WHATEVER IS CONNECTED TO THE END OF THIS FILTER, AND IT DRAWS ALL THE SMOKE THROUGH THE CIGARETTE JUST LIKE THAT (DRAWING).

THERE IS A LITTLE BIT OF AIR THAT COMES IN THROUGH THE PAPER, SO THAT THERE'S SOME VENTILATION.

A VENTILATED FILTER CIGARETTE LOOKS LIKE THIS

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(DRAWING). BUT IN ADDITION, THERE ARE A BUNCH OF LITTLE HOLES RIGHT HERE.

AND WHEN THE MACHINE WOULD PUFF HERE (INDICATING), THEN FRESH AIR -- THIS IS JUST AIR, FRESH AIR -- WOULD COME POURING THROUGH THE HOLES AND WOULD DILUTE THE SMOKE. SO IT WOULD GO FROM BEING MORE SMOKE -- THIS WOULD BE MORE SMOKE -- YOU GET AS MUCH AS 90 PERCENT AIR COMING IN. SO IT'S A MIXTURE OF 90 PERCENT AIR AND 10 PERCENT SMOKE.

THIS WOULD MAKE THE YIELD MUCH LESS BY MACHINE.

Q. AND WHY IS IT THAT THE MACHINE WOULD BE ABLE TO -- THE YIELD WOULD SEEM LOWER ON THE MACHINE?

1205

A. THE MACHINE SMOKES FROM JUST THE VERY TIP OF THIS (INDICATING). THAT'S WHERE THE MACHINE SMOKES. IT BEGINS INSERTED RIGHT THERE. SO AIR JUST COMES POURING IN THESE HOLES, BECAUSE THE HOLES ARE NOT BLOCKED BY THE MACHINE. THE MACHINE TAKES IT RIGHT FROM THE END.

ON THE OTHER HAND, IF A SMOKER HOLDS A CIGARETTE IN SUCH A WAY THAT THEIR FINGERS GO OVER THESE HOLES, WELL, THE TASTE IS BETTER BECAUSE WHEN THEY GET SMOKE -- BECAUSE REALLY THESE THINGS, THE HOLES ARE EASILY BLOCKED BY HAVING YOUR FINGERS OVER THEM OR YOUR MOUTH. INSTEAD OF HAVING 90 PERCENT VENTILATION, YOU CAN ONLY HAVE 30 OR 40 PERCENT VENTILATION.

YOU CAN MARKEDLY CHANGE THE YIELD OF THE CIGARETTES BY BLOCKING THE HOLES.

Q. DO MOST SMOKERS KNOW ABOUT THESE VENT HOLES?

A. NO. THE HOLES ARE SMALL. UNLESS YOU KNOW ABOUT THEM, LOOK AT THEM, YOU WOULD NEVER KNOW THAT THEY ARE THERE. I'VE NEVER SEEN ANY INFORMATION PROVIDED --

MR. HARDY: EXCUSE ME.

MR. FURR: OBJECTION, YOUR HONOR.

MR. HARDY: OBJECTION, YOUR HONOR.

THE WITNESS: WELL, NO.

THE COURT: LET'S GO ON TO THE NEXT QUESTION.

MS. CHABER: Q. HAVE YOU EVER SEEN ANY MARKINGS OR CIRCLES ON THE CIGARETTE ITSELF, INDICATING WHERE THESE VENT HOLES ARE?

A. NO.

Q. HAVE YOU EVER SEEN DIFFERENT COLORING ON THE

1206

FILTER OF THE CIGARETTE THAT WOULD HELP DEMONSTRATE WHERE THE VENT HOLES ARE?

A. NO.

Q. WE'VE TAKEN A CIGARETTE FROM A CAMEL LIGHT 100, DR. BENOWITZ.

CAN YOU TELL US WHETHER THERE ARE VENT HOLES ON THAT CIGARETTE?

A. YOU HAVE TO LOOK AT IT REALLY CAREFULLY UNDER GOOD LIGHT.

I WILL JUST MARK BOTH SIDES OF THE VENT HOLES OF THE CIGARETTE, SO YOU CAN FIND THEM. THEY ARE ALL AROUND THE CIGARETTE.

THE COURT: ARE YOU GOING TO MARK THIS FOR IDENTIFICATION?

MS. CHABER: I WILL MARK IT FOR IDENTIFICATION.

THE COURT: OKAY.

MS. CHABER: CERTAINLY.

THE COURT: ALL RIGHT.

MS. CHABER: DO YOU WANT TO DO THAT FIRST BEFORE HE DOES MARK IT?

THE COURT: IT DOESN'T MATTER, AS LONG AS --

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THE WITNESS: IF YOU LOOK VERY CAREFULLY -- YOU HAVE TO LOOK CAREFULLY -- YOU CAN SEE THE HOLES IN THIS LINE (MARKING CIGARETTE).

WHAT IS ACTUALLY EASIER, I TOOK THIS PIECE OF PAPER FROM A FILTER THAT I CUT IN HALF THIS MORNING. AND THIS ONE IS OPENED UP. IF YOU HOLD IT UP TO THE LIGHT, YOU CAN ACTUALLY SEE THE LITTLE PINPRICK HOLES FROM THE SAME

1207

CIGARETTE. JUST PART OF THE FILTER IS REMOVED.

MS. CHABER: I WOULD LIKE TO HAVE THE CIGARETTE THAT DR. BENOWITZ JUST MARKED MARKED AS PLAINTIFFS' NEXT IN ORDER.

THE CLERK: PLAINTIFFS' EXHIBIT 1819.

MS. CHABER: AND I ASSUME, YOUR HONOR, THE COURT DOESN'T --

THE COURT: NEED A COPY.

MS. CHABER: -- NEED A COPY.

MR. HARDY: MAY I SEE IT, COUNSELOR?

MS. CHABER: YES, I WILL, BEFORE I DO ANYTHING ELSE WITH IT.

(ITEM MORE PARTICULARLY LISTED IN THE INDEX MARKED FOR IDENTIFICATION PLAINTIFF'S EXHIBIT # 1819)

MS. CHABER: AND I WOULD HAVE MARKED FOR IDENTIFICATION THE PORTION OF THE PAPER FILTER. AND IF YOU COULD MARK IT.

THE CLERK: YES. PLAINTIFFS' EXHIBIT 1820.

MS. CHABER: MAYBE YOU CAN MARK IT JUST ON THE EDGE HERE.

(ITEM MORE PARTICULARLY LISTED IN THE INDEX MARKED FOR IDENTIFICATION PLAINTIFF'S EXHIBIT # 1820)

THE COURT: ACTUALLY, ARE WE AT A GOOD SPOT?

MS. CHABER: I WAS JUST GOING TO ASK YOUR HONOR

1208

IF WE COULD PASS THIS TO THE JURY FOR DEMONSTRATIVE PURPOSES.

THAT WOULD BE PLAINTIFFS' EXHIBITS 1819 AND 1820, IN ORDER FOR THEM TO SEE --

THE COURT: THAT'S ENOUGH.

IS THERE ANY OBJECTION?

MR. HARDY: NO OBJECTION.

MR. FURR: NO OBJECTION.

THE COURT: YOU MAY DO THAT. LET'S HAVE ALL THE JURORS WAIT UNTIL EVERYBODY LOOKS AT IT.

MS. CHABER: I'M GOING TO START THIS ONE AT THIS END, AND THIS ONE AT THIS END, SO WE DON'T SPEND TOO MUCH TIME DOING THIS.

(PLAINTIFFS' EXHIBIT NOS. 1819 & 1820 SHOWN TO THE JURY)

MS. CHABER: Q. IF I UNDERSTAND YOU --

THE COURT: I DON'T WANT TO HAVE QUESTIONS GOING ON WHILE THE JURY IS LOOKING.

MS. CHABER: I WAS JUST TRYING TO ORIENT THEM --

THE COURT: GO AHEAD.

MS. CHABER: -- IN TERMS OF THE PIECE OF THE FILTER.

Q. IF YOU HOLD IT UP TO THE LIGHT IS WHEN YOU COULD SEE THE VENT HOLES?

A. YES.

Q. AND IN TERMS OF THE CIGARETTE THAT'S BEING

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PASSED, YOU HAVE ACTUALLY MADE TWO MARKS AROUND IT?
A. YES.

THE COURT: IF EVERYBODY HAS SEEN THOSE MATERIALS, WHY DON'T WE GO TO LUNCH.
MS. CHABER: I BELIEVE ONE IS STILL BEING PASSED THROUGH THE BACK.
THE COURT: OKAY.
MS. CHABER: I WOULD OFFER 1820 INTO EVIDENCE.
THE COURT: 1820. ANY OBJECTION?
MR. FURR: NO OBJECTION.
MR. HARDY: NO OBJECTION.
THE COURT: 1820 IS RECEIVED.
(ITEM MORE PARTICULARLY LISTED IN THE INDEX RECEIVED IN EVIDENCE AS PLAINTIFFS' EXHIBIT # 1820)
MS. CHABER: I WOULD OFFER 1819 INTO EVIDENCE.
THE COURT: 1819.
ANY OBJECTION TO 1819?
MR. FURR: NO OBJECTION.
MR. HARDY: NO OBJECTION.
THE COURT: 1819 IS RECEIVED.
(ITEM MORE PARTICULARLY LISTED IN THE INDEX RECEIVED IN EVIDENCE AS PLAINTIFFS' EXHIBIT # 1819)
THE COURT: OKAY, JURORS. TIME FOR LUNCH. PLEASE CONTINUE TO FOLLOW THE ADMONITION OVER THE NOON HOUR. HAVE A GOOD LUNCH, AND WE'LL SEE YOU BACK AT 1:30.
(LUNCH RECESS TAKEN AT 12:05 P.M.)

AFTERNOON SESSION 1:52 P.M.
MONDAY, JANUARY 24, 2000
THE COURT: GOOD AFTERNOON, EVERYBODY. WE ARE BACK ON THE RECORD.
MS. CHABER, YOU MAY PROCEED.
MS. CHABER: JUST SO THAT WE GO ALONG FASTER, AS WE GO ALONG, I'D LIKE TO MOVE SOME DOCUMENTS INTO EVIDENCE AT THIS TIME.
THE COURT: ROUGHLY, HOW MANY ARE THERE, APPROXIMATELY?
MS. CHABER: 10.
THE COURT: 10. OKAY. DO YOU WANT TO TELL US THE NUMBERS?
MS. CHABER: YES.
THE COURT: THANK YOU.
MS. CHABER: I'M GIVING THE COURT THE BINDER NUMBER FOLLOWED BY THE DOCUMENT NUMBER.
THE COURT: LET ME ASK YOU ONE QUESTION. WHEN YOU SAY LIKE 1-1, IS THAT THE ACTUAL EXHIBIT NUMBER?
MS. CHABER: THAT IS THE ACTUAL EXHIBIT NUMBER.
THE COURT: ALL RIGHT.
MS. CHABER: IT ALSO APPEARS THERE. SO IT HELPS THE COURT AND COUNSEL FIND THEM, IF THEY NEED TO, IN THE BINDERS.
THE COURT: SO THE NUMBERS ARE?
MS. CHABER: 1-3, 1-29, 1-33, 1-32, 3-120.
THE COURT WANTS ME TO SKIP THE ONES THAT WE JUST TALKED ABOUT IN THE HALLWAY ABOUT POSSIBLE OBJECTIONS?

THE COURT: IT'S YOUR CHOICE, BUT THAT'S WHAT WE DISCUSSED.

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MS. CHABER: LET ME SEE. I SAID I HAVE THE DOCUMENT BINDER NUMBERS. I DON'T HAVE THEM FOR SOME OF THEM.

600.

THE COURT: IS THERE SOME NUMBER THAT GOES WITH THAT?

MS. CHABER: YES.

THE COURT: 14; RIGHT?

MS. CHABER: YES, YOUR HONOR.

THE COURT: 14-600.

MS. CHABER: 9-423.

THE COURT: I DIDN'T HEAR WHAT YOU JUST SAID.

MS. CHABER: I'M SORRY. 9-423.

THE COURT: OKAY.

MS. CHABER: 4-191 AND 27-1096, I BELIEVE.

THE COURT: 1096? IF THAT'S THE END OF THE LIST, I WILL READ BACK TO YOU WHAT I HAVE.

IS THAT THE END?

MS. CHABER: YES.

THE COURT: LET ME READ THESE BACK AND BE SURE THAT EVERYBODY UNDERSTANDS WHAT'S BEING OFFERED AND THEN I WILL ASK IF THERE'S ANY OBJECTION.

1-3, 1-29, 1-33, 1-32, 3-120, 14-600, 9-423, 4-191 AND 27-1096.

NOW, ARE THOSE THE ONES THAT ARE BEING OFFERED?

MS. CHABER: YES.

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THE COURT: ANY OBJECTIONS TO ANY OF THOSE?

MR. HARDY: YES, YOUR HONOR. I'D LIKE TO SEE -- SINCE I HAVEN'T SEEN THE COPY THAT COUNSEL WAS USING, I DON'T KNOW WHETHER THERE'S A PROBLEM WITH CLEANING THEM UP.

ASSUMING CLEAN COPIES, THEN PHILIP MORRIS HAS AN OBJECTION TO 9-423, AND I THINK THAT'S ALL THAT PHILIP MORRIS OBJECTS TO.

THE COURT: PURSUANT TO OUR DISCUSSION, DO YOU WANT TO WITHDRAW THE OFFER OF THAT ONE RIGHT NOW? WE'LL TRY AND DEAL WITH IT ON OUR TIME, AFTER THE JURY IS GONE.

MS. CHABER: CAN I CONFER WITH COUNSEL REAL QUICKLY FOR ONE SECOND?

THE COURT: YES, YOU MAY.

(ATTORNEYS CONFER)

MS. CHABER: WE'LL TAKE 9-423, PURSUANT TO OUR DISCUSSIONS, AND DEAL WITH IT LATER, OUT OF THE JURY'S PRESENCE.

THE COURT: FOR THE RECORD RIGHT NOW, YOU WITHDRAW THAT DOCUMENT.

MR. HARDY: EXCUSE ME. PERHAPS I SHOULD OBJECT TO THOSE THAT ARE PHILIP MORRIS'. THERE ARE A COUPLE OF OTHER DOCUMENTS THAT PHILIP MORRIS HAS NO OBJECTION TO, 1-3, 1-29, 1-33, 1-32, 3-120, OR 4-191.

THE COURT: NOT 4-191.

WHAT ABOUT 14-600 AND 27-1096?

MR. HARDY: I BELIEVE THESE ARE R.J. REYNOLDS' DOCUMENTS.

THE COURT: THEN LET ME --

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MR. FURR: WE HAVE AN OBJECTION TO 14-600.

THE COURT: DO YOU WANT TO WITHDRAW THE OFFER, WITHOUT PREJUDICE TO REOFFERING IT LATER?

MS. CHABER: FOR THE MOMENT, YES.

THE COURT: AND HOW ABOUT 27-1096?

MR. FURR: NO OBJECTION.

THE COURT: LET ME JUST DO THIS ONE MORE TIME.

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I UNDERSTAND THAT THESE DOCUMENTS ARE BEING OFFERED AND THERE'S NO OBJECTION TO THEM.
AND HERE IS THE LIST: 1-3, 1-29, 1-33, 1-32, 3-120, 4-191 AND 27-1096.
FIRST OF ALL, ARE YOU OFFERING ALL OF THOSE?
MS. CHABER: YES, YOUR HONOR.
THE COURT: AND THERE'S NO OBJECTION TO ANY OF THEM; CORRECT?
MR. HARDY: THAT IS CORRECT, PROVIDED WE GET TO SEE THEM FIRST TO BE CLEAR IT'S A CLEAN COPY.
THE COURT: THE SAME WITH YOU MR. FURR; NO OBJECTION?
MR. FURR: CORRECT, YOUR HONOR.
THE COURT: SO THOSE ARE RECEIVED.
MS. CHABER: THANK YOU.
THE COURT: WHEN YOU SAY, "PROVIDED THAT THEY'RE CLEAN COPIES," I'M GOING TO --
MR. HARDY: WE DID HAVE AN UNDERSTANDING AMONG COUNSEL THAT COPIES WILL BE CLEANED UP. THEY PROBABLY ARE, BUT I JUST HAVEN'T SEEN THEM YET.
THE COURT: THERE'S NO OBJECTION TO THESE BEING

1214

RECEIVED, SUBJECT TO RAISING SOMETHING LATER? YES?
MR. HARDY: YES, YOUR HONOR.
MS. CHABER: AND THAT WAS THE WAY TO SAVE TIME, YOUR HONOR. I THINK WE DID IT THE OTHER WAY.
(DOCUMENTS MORE PARTICULARLY LISTED IN THE INDEX RECEIVED IN EVIDENCE AS PLAINTIFFS' EXHIBIT #S 1-3, 1-29, 1-33, 1-32, 3-120, 4-191 AND 27-1096)

DIRECT EXAMINATION (CONTINUED)

BY MS. CHABER: Q. DR. BENOWITZ, I WANT TO GO BACK TO A COUPLE OF THINGS THAT WE'VE TALKED ABOUT TO MAKE SURE THAT I UNDERSTAND THE ISSUES.
THE FAGERSTROM QUESTION SCALE. HOW DO YOU REFER TO IT AS?
A. IT'S BEEN CALLED THE FDQ, THE FAGERSTROM DEPENDENCE QUESTIONNAIRE.
Q. WHO WAS FAGERSTROM?
A. DR. KARL FAGERSTROM IS A PSYCHOLOGIST FROM SWEDEN WHO HAS SPENT HIS CAREER STUDYING NICOTINE ADDICTION AND TOBACCO. HE HAS RUN CLINICS FOR MANY YEARS.
HE ALSO WORKED FOR ONE OF THE PHARMACEUTICAL COMPANIES THAT DEVELOPED NICOTINE GUM. BUT HE WAS ONE OF THE PIONEERS IN TRYING TO ASSESS NICOTINE ADDICTION.
AND HE DEVELOPED THIS QUESTIONNAIRE BACK IN THE '70S. AND THIS HAS BEEN USED BY MOST SMOKING CESSATION TREATMENT PEOPLE AND MOST RESEARCHERS IN THE FIELD SINCE

1215

THEN.
Q. AND WHEN WAS NICOTINE GUM BEGUN TO BE USED AS A HELP AID FOR PEOPLE TO QUIT SMOKING?
A. WELL, IT WAS MARKETED IN THE U.S. IN THE 1980S. I THINK IN THE MID-1980'S.
IT WAS DEVELOPED IN SWEDEN TO HELP SUBMARINERS WHO COULDN'T SMOKE IN SUBMARINES TO DEAL WITH THEIR NICOTINE DEPENDENCE.
Q. I'D LIKE TO SHOW YOU PLAINTIFF'S 1-29.
AND WHEN WAS IT THAT IT WAS DEVELOPED IN SWEDEN?
A. I DON'T REMEMBER EXACTLY. I THINK IT WAS SOMETIME JUST AFTER WORLD WAR II, IN THE '50S OR '60S.

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I'M NOT SURE OF THE EXACT DATE.
MS. CHABER: YOUR HONOR, MAY I DISPLAY THE DOCUMENT IN EVIDENCE, 1-29?
THE COURT: I ASSUME THERE'S NO OBJECTION, RIGHT?
MR. HARDY: RIGHT. NO OBJECTION.
THE COURT: YES, YOU MAY.
MS. CHABER: THERE MAY BE NO OBJECTION, BUT THERE ALSO MAY BE NO PURPOSE.
Q. THIS IS AN OCTOBER 6, 1960 DOCUMENT FROM MR. SELIGMAN -- EXCUSE ME -- FROM MR. J. E. LINCOLN TO MR. SELIGMAN, WHO IS A DIRECTOR AT PHILIP MORRIS, WITH COPIES TO DR. WAKEHAM, DIRECTOR -- OR RATHER VICE PRESIDENT, AND OTHERS. AND I WANT TO DIRECT YOUR ATTENTION TO A PORTION OF THIS DOCUMENT.
CAN YOU READ IT FROM THERE?

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A. YES, IF I CONCENTRATE A LOT.
Q. IT LEADS ME TO BELIEVE THAT IT MAY BE DIFFICULT FOR THE JURY TO READ AS WELL. I HAVE ANOTHER COPY FOR YOU, DOCTOR, WHICH IS NOW BURIED.
LET ME SEE IF I CAN READ IT AND ASK YOU A QUESTION ABOUT IT.
THERE'S A DISCUSSION HERE OF A DR. DUPUIS -- AND I'M SURE I'M PRONOUNCING THAT WRONG -- WHO TALKED ABOUT AN IDEA.
MR. HARDY: EXCUSE ME. YOUR HONOR, I THINK THE DOCUMENT SPEAKS FOR ITSELF. I THINK, ABSENT SOME FOUNDATION THAT REQUIRES INTERPRETATION BY DR. BENOWITZ, THAT IT'S NOT PROPER TO DISPLAY THIS AND TESTIFY ABOUT IT WITH THE WITNESS --
THE COURT: SUSTAINED.
MR. HARDY: -- ON THE STAND.
THE COURT: SUSTAINED.
MS. CHABER: Q. DOCTOR, I'D LIKE TO READ YOU A PORTION AND ASK YOU A QUESTION ABOUT IT.
HIS IDEA WAS TO PROVIDE NICOTINE TO THE CONSUMER IN THE FORM --
MR. HARDY: EXCUSE ME, YOUR HONOR.
THE COURT: I JUST SUSTAINED THE OBJECTION. NOW YOU'RE GOING AHEAD AND DOING WHAT I SUSTAINED AN OBJECTION ON.
MS. CHABER: I THOUGHT IT DEPENDED ON THE QUESTION I ASKED.
THE COURT: THE OBJECTION WAS THAT, WITHOUT

1217

LAYING A FOUNDATION OR SHOWING A NEED FOR INTERPRETATION, IT'S NOT PROPER TO SHOW A WITNESS A DOCUMENT WHERE THERE IS NO EVIDENCE THAT THE WITNESS HAS HAD ANY CONNECTION WITH THE DOCUMENT AND ASKS THE WITNESS TO TESTIFY ABOUT IT.
I SUSTAINED THAT OBJECTION. AND THAT'S, FROM WHAT THE RECORD APPEARS RIGHT NOW, TO BE WHAT'S OCCURRING.
SO YOU ARE GOING TO NEED TO TAKE IT DOWN FOR THE MOMENT.
MS. CHABER: THAT IS EVEN THOUGH THE DOCUMENT IS IN EVIDENCE, YOUR HONOR?
THE COURT: CORRECT. AND I WILL EXPLAIN TO YOU HOW WE'RE GOING TO HANDLE THOSE DURING THE COURSE OF THE CASE AS WELL, IF YOU'D LIKE.
DOCUMENTS WHICH HAVE BEEN RECEIVED INTO EVIDENCE MAY NOT BE READ TO THE JURY BY ANY LAWYER UNLESS IT IS IN THE CONTEXT OF ELICITING TESTIMONY FROM A WITNESS ABOUT THE DOCUMENT, BECAUSE YOU CAN ARGUE ABOUT THE DOCUMENTS AND READ

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FROM THEM DURING YOUR CLOSING ARGUMENTS.
BUT WHAT WE'RE DOING, YOU ARE GATHERING EVIDENCE. SO IF YOU HAVE BONA FIDE QUESTIONS OF WITNESSES ABOUT THE CONTENT OF DOCUMENTS, THEN YOU MAY DISPLAY THE DOCUMENTS.
BUT THERE HAS TO BE SOME FOUNDATION FOR THOSE KINDS OF QUESTIONS. OTHERWISE, YOU'RE GOING TO HAVE TO SAVE YOUR READING FROM THE DOCUMENTS AND YOUR ARGUING ABOUT THEM UNTIL YOUR CLOSING ARGUMENTS, BECAUSE THEY ARE ALREADY IN EVIDENCE.
AND THAT IS THE FUNCTION OF THIS PHASE OF THE

1218

PROCEEDING, WHICH IS TO GATHER EVIDENCE. SO THAT'S THE PRACTICE I INTEND TO FOLLOW.
MS. CHABER: Q. DR. BENOWITZ, WAS IT KNOWN IN 1960 OF A WAY TO DEVELOP NICOTINE GUM SO THAT THE TOTAL NICOTINE DOSAGE WOULD BE EQUAL TO THE AMOUNT OF NICOTINE IN SMOKE?
A. YES. THAT IS WHAT WAS DEVELOPED BY DR. OVE FERNO IN SWEDEN. HE DEVELOPED A SORT OF A GUM MATRIX THAT WOULD SLOWLY RELEASE NICOTINE AND WOULD GIVE THE CHEWER AN EQUIVALENT AMOUNT OF NICOTINE TO SMOKE IN A CIGARETTE SLOWLY OVER 30 MINUTES.
Q. ARE YOU AWARE IN 1960 OF WHAT WOULD HAPPEN IF A NICOTINE GUM WERE RELEASED COMMERCIALLY, AS TO WHETHER OR NOT IT WOULD FALL UNDER THE FOOD AND DRUG ADMINISTRATION?
MR. FURR: OBJECTION. NO FOUNDATION, YOUR HONOR.
THE COURT: SUSTAINED.
MS. CHABER: Q. DR. BENOWITZ, LET'S TALK ABOUT -- HOW MANY YEARS HAVE YOU BEEN INVOLVED IN NICOTINE AND SMOKING RESEARCH?
A. 25 OR MORE.
Q. AND DURING THE 25 OR MORE YEARS THAT YOU'VE BEEN INVOLVED, DO NICOTINE SUBSTITUTE PRODUCTS LIKE NICOTINE GUM FALL UNDER THE FOOD AND DRUG ADMINISTRATION AUTHORITY?
A. YES. ALL NICOTINE PRODUCTS HAVE TO BE REVIEWED AS NEW DRUGS BY THE FDA.
Q. AND ARE THERE REQUIREMENTS THAT INVOLVE SHOWING SAFETY IF A DRUG IS UNDER THE FOOD AND DRUG ADMINISTRATION

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AUTHORITY?
A. YES.
Q. CIGARETTES, ARE THEY UNDER THE FOOD AND DRUG ADMINISTRATION AUTHORITY, REQUIRING THEM TO BE SHOWN TO BE SAFE?
A. AT THE MOMENT, CIGARETTES ARE NOT, AND MAY BE IN THE FUTURE.
MR. HARDY: EXCUSE ME. OBJECTION, YOUR HONOR, TO EVERYTHING AFTER "ARE NOT."
THE COURT: WE'LL LEAVE IN AT THE MOMENT "CIGARETTES ARE NOT" AND STRIKE THE BALANCE.
MS. CHABER: Q. AND DO YOU KNOW WHETHER OR NOT, DR. BENOWITZ, IT WAS WITHIN THE CAPABILITY OF PHILIP MORRIS OR THE OTHER TOBACCO COMPANIES TO MAKE NICOTINE GUM?
MR. FURR: OBJECTION. RELEVANCE.
THE COURT: THERE IS NO FOUNDATION FOR IT.
I'M GOING TO SUSTAIN ON FOUNDATIONAL GROUNDS AND SEE IF YOU CAN LAY A FOUNDATION.
MS. CHABER: I ASKED IF HE KNEW.
THE COURT: EXCUSE ME?
MS. CHABER: I ASKED IF HE KNEW. IF HE DOESN'T KNOW, THEN I'D AGREE WITH YOU YOUR HONOR.

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THE COURT: WHAT IS THE PERIOD OF TIME IN YOUR QUESTION? YOU SAID "WHETHER IT WAS WITHIN THE CAPABILITY?" WHEN? WHAT ARE WE TALKING ABOUT.

MS. CHABER: Q. DURING THE TIME PERIOD, DR. BENOWITZ, THAT YOU HAVE BEEN INVOLVED IN SMOKING AND NICOTINE AND HEALTH ISSUES, DO YOU KNOW WHETHER OR NOT IT

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WAS WITHIN THE CAPABILITY OF THE TOBACCO COMPANIES TO PRODUCE NICOTINE CHEWING GUM?

THE COURT: THAT'S A DIFFERENT QUESTION.

MR. FURR: AND I OBJECT TO THAT ON RELEVANCE, YOUR HONOR.

THE COURT: THAT'S A TOTALLY DIFFERENT QUESTION THAN THE LAST ONE. LET'S HAVE A VERY BRIEF SIDEBAR.

(COURT AND COUNSEL CONFER OUTSIDE THE PRESENCE OF THE JURY)

MS. CHABER: Q. DR. BENOWITZ, LET ME ASK YOU SOME QUESTIONS ABOUT WHAT WE WERE TALKING ABOUT BEFORE WE LEFT AT LUNCHTIME -- I'LL LEAVE THIS OPEN FOR THE MOMENT (INDICATING DRAWING PREPARED BY WITNESS) -- WHICH WAS THIS ISSUE OF THE VENTS.

WHAT ARE THE PURPOSE OF THE VENTS?

A. WELL, EVERY CIGARETTE GETS TESTED BY A SMOKE MACHINE, WHICH I TALKED ABOUT BEFORE, AND IT RATED THEM WITH A TAR YIELD AND NICOTINE YIELD WHEN SMOKED IN A STANDARDIZED WAY.

THE NUMBERS THAT YOU GET GENERATED ARE MANDATED TO BE PART OF ADVERTISING. SO EVERY ADVERTISEMENT HAS TO HAVE NUMBERS FOR THE YIELD OF CIGARETTES.

Q. AND WHEN YOU SAY "THE YIELD," WHAT DO YOU MEAN?

A. HOW MUCH TAR, HOW MUCH NICOTINE GETS GENERATED BY THAT CIGARETTE WHEN SMOKED ACCORDING TO THE STANDARD SMOKING MACHINE METHOD, WHICH, AS I SAID BEFORE, IS NOT HOW THE SMOKER SMOKES, BUT IT'S A STANDARDIZED METHOD THAT WAS IMPLEMENTED BY THE FEDERAL TRADE COMMISSION MANY YEARS AGO.

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CIGARETTES CAN BE ENGINEERED TO BE LOW-YIELD BY MACHINE IN DIFFERENT WAYS. AS I SAID BEFORE, ONE WAY IS THAT THE CIGARETTE BURNS FASTER, SO THE MACHINE TAKES FEWER PUFFS.

ONE WAY IS THAT IT'S VENTILATED TO LET OUTSIDE AIR COME IN TO DILUTE THE SMOKE, SO IT'S NOT JUST PURE CIGARETTE SMOKE; IT'S SMOKE MIXED WITH AIR.

THE VENTILATION HOLES, WHEN TESTED BY MACHINE, ALLOW OUTSIDE AIR TO MIX WITH THE SMOKE, SO THAT THE FINAL YIELD IS MUCH LESS, BECAUSE IT'S ONLY A PERCENTAGE OF SMOKE AND MOSTLY AIR.

SO IT BASICALLY MAKES A CIGARETTE -- CONVERTS A CIGARETTE FROM A HIGHER-YIELD CIGARETTE TO A LOWER-YIELD CIGARETTE.

Q. ARE THERE ANY WAYS THAT THESE VENT HOLES THAT EXIST ON CIGARETTES, LIKE THE CAMEL LIGHT 100S THAT WE PASSED AROUND (INDICATING), COULD BE MADE MORE OBVIOUS?

A. YES.

Q. CAN YOU PLEASE EXPLAIN THAT.

A. THERE COULD BE A RING AROUND THE HOLES WITH A NOTE THAT SAYS THERE ARE VENTILATION HOLES AND FOR THIS --

MR. FURR: OBJECTION, YOUR HONOR. MOVE TO STRIKE EVERYTHING AFTER "THE HOLES."

THE COURT: SUSTAINED. I'LL STRIKE THE BALANCE AFTER "THERE COULD BE A RING AROUND THE HOLES."

MS. CHABER: Q. OKAY. WHAT ELSE?

A. THERE COULD BE LITTLE DOTS. THEY WOULD BE

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COLORED IN A DIFFERENT WAY, JUST SO THE SMOKER WOULD KNOW
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WHERE THE HOLES ARE.
SO IF SMOKER CHOSE NOT TO BLOCK THE HOLES, THEY WOULD KNOW WHERE NOT PUT THEIR FINGERS OR THEIR LIPS.
Q. WHAT WOULD BE THE BENEFIT OF BLOCKING OR NOT BLOCKING THE HOLES?
A. WELL, IF A PERSON WANTS THE CIGARETTE TO BE CLOSE TO WHAT THE MACHINE TESTING YIELDS ARE, THEN THEY NEED TO NOT BLOCK THE HOLES. IF THEY BLOCK THE HOLES, IT BECOMES A HIGHER-YIELD CIGARETTE.
Q. HAVE YOU LOOKED AT THIS ISSUE AS TO WHETHER OR NOT THE BLOCKING OF THE HOLES CHANGES THE YIELD OF CIGARETTES?
A. YES.
Q. AND DOES IT?
A. YES. WHEN YOU BLOCK THE HOLES, YOU CAN CHANGE THE YIELD SEVERALFOLD. YOU CAN MAKE A CIGARETTE THAT'S SUPPOSED TO BE A 1 MILLIGRAM TAR CIGARETTE INTO A 10 MILLIGRAM TAR CIGARETTE JUST BY BLOCKING THE HOLES.
Q. ARE THERE OTHER WAYS THAT LIGHT CIGARETTES DO NOT GIVE THE YIELD THAT IS REPORTED ON THEM?
A. WELL, I TALKED ABOUT THE MAIN ISSUE IS THAT THE SMOKER DOES NOT SMOKE THE CIGARETTE THE SAME WAY AS THE MACHINE TESTS.
AND THE SMOKER DOES THAT IN DIFFERENT WAYS. BIGGER PUFFS, MORE FREQUENT PUFFS, BLOCKING THE VENTILATION HOLES. THOSE ARE THE THREE MAIN WAYS.
SMOKING THE CIGARETTE DOWN TO THE VERY FILTER. THOSE ARE ALL DIFFERENT WAYS THAT A SMOKING MACHINE -- TO
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GET MUCH MORE SMOKE THAN A MACHINE TESTING SAYS THAT A CIGARETTE IS SUPPOSED TO GIVE.
Q. ARE YOU AWARE OF ANY ANALYSES OF WHETHER OR NOT A REGULAR CIGARETTE -- LIKE A MARLBORO REGULAR -- WHETHER OR NOT IT HAS A DIFFERENT YIELD THAN A LIGHT MARLBORO LIGHT?
A. YES.
Q. AND CAN YOU EXPLAIN THAT.
A. YES. THERE HAVE BEEN TESTS DONE IN SMOKERS, LOOKING AT EXPOSURE TO NICOTINE AND CARBON MONOXIDE, WHICH ARE MARKERS OF SMOKE EXPOSURE, SHOWING THAT SMOKERS SMOKING MARLBORO FULL-FLAVOR AND MARLBORO LIGHTS HAVE VIRTUALLY THE SAME EXPOSURE TO TOBACCO SMOKE, EVEN THOUGH THE MACHINE NUMBERS ARE MUCH DIFFERENT, BUT THE ACTUAL SMOKER HAS THE SAME EXPOSURE FOR BOTH CIGARETTES.
Q. AND HAVE YOU LOOKED AT THE ISSUE OF WHETHER OR NOT THERE IS PUBLIC AWARENESS THAT THE NUMBERS THAT ARE REPORTED BY THE FDA DO NOT ACCURATELY REFLECT WHAT THE SMOKER IS ACTUALLY GETTING?
A. YES.
Q. AND CAN YOU TELL US ABOUT THAT.
A. SURVEYS INDICATE THAT MANY SMOKERS THINK THAT WHAT THE NUMBERS SAY IS WHAT THEY GET.
FOR EXAMPLE, ONE SURVEY ASKED IF YOU GET THE SAME AMOUNT OF TAR AND NICOTINE SMOKING 10 1-MILLIGRAM CIGARETTES THAT YOU GET FROM ONE 10-MILLIGRAM CIGARETTE.
AND A THIRD OF THE SMOKERS SAID YES, THEY BELIEVE THAT THESE NUMBERS PREDICT WHAT THEY ACTUALLY ARE EXPOSED TO.
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AND IT'S NOT CORRECT, BUT THAT'S WHAT THEY BELIEVE.
Q. AND ARE YOU AWARE OF THERE BEING ANY ANALYSES

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WITHIN THE TOBACCO INDUSTRY COMPARING THEIR OWN REGULAR BRANDS OF CIGARETTES TO THEIR OWN LIGHT BRANDS OF CIGARETTES TO DETERMINE WHETHER OR NOT THE YIELDS ARE INDEED LOWER IN THE LIGHTS?

A. YES.

Q. AND CAN YOU EXPLAIN THAT.

A. WELL, AGAIN, THERE IS ONE STUDY THAT WAS DONE BY PHILIP MORRIS WITH MARLBORO AND MARLBORO LIGHT. AND THEY COMPARED EXPOSURES, AND FOUND EXPOSURES IN SMOKERS ACTUALLY SMOKING THE CIGARETTES WERE THE SAME.

Q. AND ARE THERE -- BESIDES GETTING THE SAME AMOUNT FROM A CAMEL LIGHT OR A MARLBORO LIGHT AS ONE WOULD GET FROM A MARLBORO REGULAR OR A CAMEL REGULAR, ARE THERE OTHER DOWNSIDES TO LIGHT CIGARETTES?

A. YES.

Q. AND CAN YOU TELL US WHAT THOSE ARE.

A. THE MAJOR DOWNSIDE IS THAT PEOPLE WHO ARE CONCERNED ABOUT HEALTH OFTEN SHIFT TO THE LOW-YIELD CIGARETTES, THINKING THAT THIS IS A WAY TO REDUCE THEIR RISKS, BUT THEY'RE STILL SMOKING.

WHAT IS BEST FOR THEM IS TO QUIT SMOKING ALTOGETHER, BUT A SMOKER WHO IS ADDICTED WOULD LIKE TO FIND SOME WAY TO KEEP ON SMOKING WITHOUT HAVING TO QUIT.

AND ONE WAY THAT A SMOKER WILL ATTEMPT THAT IS TO SAY, "WELL, IF I SMOKE LIGHTS, AT LEAST I'M NOT GETTING

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EXPOSED TO AS MUCH NICOTINE AND TAR, SO IT'S LESS HAZARDOUS, AND I CAN KEEP ON SMOKING AND IT WON'T BE AS BAD FOR ME."

Q. THEY'RE LIGHTER, THEY'RE BETTER?

A. YES. AND SO THERE IS A REAL PUBLIC HEALTH CONCERN THAT HAVING LIGHT CIGARETTES PERCEIVED AS SAFER CIGARETTES REALLY UNDERMINES THE PUBLIC HEALTH CESSATION MESSAGE, WHICH IS THE ONLY WAY TO REDUCE YOUR RISK SUBSTANTIALLY IS TO QUIT SMOKING ALTOGETHER.

Q. AND COULD A CIGARETTE THAT, FOR EXAMPLE, HAD VENT HOLES, COULD IT BE SAFER THAN THE CIGARETTE WITHOUT VENT HOLES, IF THE VENT HOLES AREN'T BLOCKED?

A. YES. IF THE VENT HOLES PROVIDE 90 PERCENT VENTILATION, WHICH MEANS THE SMOKE ENDS UP NINE PARTS AIR AND ONE PART TOBACCO SMOKE, THEN YOUR FINAL EXPOSURE, IF YOU DIDN'T SMOKE MORE PUFFS OR MORE CIGARETTES, WOULD BE ONE-TENTH OF WHAT YOU'D GET WITH THE UNVENTED CIGARETTE.

SO THAT WOULD BE A PRETTY SUBSTANTIAL REDUCTION OF EXPOSURE AND WOULD PROBABLY BE ASSOCIATED WITH A REDUCED RISK OF SOME DISEASES FROM SMOKING.

Q. CIGARETTES, AS THEY ARE COMMERCIALLY SOLD, ARE THE NICOTINE LEVELS WITHIN THEM CONTROLLED?

A. YES.

Q. AND HOW IS THAT?

A. WELL, THE PROCESS OF MANUFACTURING CIGARETTES INVOLVES TAKING CERTAIN TOBACCO LEAVES AND COMBINING AND BLENDING THOSE, MAKING WHAT'S CALLED RECONSTITUTED TOBACCO.

Q. WHAT IS THAT?

A. THAT'S WHERE YOU TAKE BITS AND PIECES OF TOBACCO

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PLANT BITS, SHRED IT UP, EXTRACT NICOTINE AND EXTRACT OTHER FLAVORS FROM IT, MAKE THE SHREDS INTO BASICALLY LIKE A PAPER, LIKE A SHEET OF PAPER, LIKE YOU'D MAKE MANUFACTURING PAPER, AND THEN SHRED UP THE PAPER IN THE SAME WAY YOU WOULD SHRED TOBACCO LEAVES.

AND THEN YOU READD NICOTINE AND FLAVORANTS TO THE SHREDDED PAPER OR THE SHREDDED TOBACCO, AND THEN MIX IT WITH OTHER TOBACCO LEAVES FOR YOUR FINAL PRODUCT.

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Q. SO THE NICOTINE IS ACTUALLY REMOVED AND THEN ADDED BACK IN?
A. RIGHT. AND READDED. SO THE FINAL CIGARETTE, EVERY CIGARETTE THAT COMES OFF THE ASSEMBLY LINE, HAS GOT JUST ABOUT THE SAME AMOUNT OF NICOTINE. EVERY MARLBORO IS ABOUT THE SAME. EVERY CAMEL IS ABOUT THE SAME.
Q. AND THAT'S THROUGH CONTROL IN THE MANUFACTURING?
A. YES.
Q. NOW, WE TALKED A LITTLE BIT ABOUT PEOPLE QUITTING SMOKING.
WHAT IS THE SUCCESS RATE OF PEOPLE IN QUITTING SMOKING?
A. WELL, THE DATA FROM THE CENTERS FOR DISEASE CONTROL INDICATE THAT ABOUT 35 PERCENT OF SMOKERS MAKE A SERIOUS QUIT ATTEMPT EACH YEAR, AND ABOUT 3 PERCENT OF SMOKERS SUCCEED IN QUITTING.
IF YOU LOOK AT DATA FROM RESEARCH STUDIES, WHERE PEOPLE HAVE BEEN TREATED WITH NICOTINE PATCHES OR GUMS OR OTHER KIND OF MEDICATIONS, THE SUCCESS RATES, DEPENDING ON HOW MUCH PSYCHOLOGICAL THERAPY, RANGE FROM ABOUT 10 PERCENT

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TO MAYBE 25 OR 30 PERCENT.
Q. SUCCESS?
A. SUCCESS RATE.
SO THESE ARE PEOPLE WHO ARE EXTREMELY MOTIVATED, WHO WILL GO THROUGH A LONG AND COMPLICATED RESEARCH STUDY, AND EVEN AT BEST, THE BEST SUCCESS RATES THAT WE GET ARE 35 PERCENT, AND USUALLY, THEY ARE IN THE RANGE OF 20 PERCENT IN A YEAR, PEOPLE SUCCESSFULLY QUIT.
NOW, MOST PEOPLE COULD EVENTUALLY QUIT. BUT ON AVERAGE, IT TAKES, DEPENDING ON WHICH DATA YOU LOOK AT, BETWEEN FOUR QUIT ATTEMPTS OR EIGHT QUIT ATTEMPTS BEFORE SOMEONE SUCCEEDS.
SO IN MEDICINE, WE NEED TO EXPECT THAT AND CONSTANTLY COUNSEL AND RECOUNSEL SMOKERS AND SAY, "YOU HAVE TO TRY AGAIN AND AGAIN AND AGAIN, BECAUSE IF SMOKERS WANT TO QUIT, AND EVENTUALLY, YOU WILL BE ABLE TO QUIT."
THAT'S WHAT I TELL SMOKERS. AND HOPEFULLY, THEY WILL. BUT IT TAKES MANY ATTEMPTS BEFORE THEY SUCCEED ON AVERAGE.
Q. AND CAN ILLNESS AFFECT WHETHER SOMEBODY IS SUCCESSFUL AT QUITTING SMOKING?
A. YES.
Q. AND HOW?
A. WELL, THE DECISION TO SMOKE OR NOT SMOKE INVOLVES WEIGHING A NUMBER OF DIFFERENT FACTORS. SOME FACTORS ARE THE ADDICTION FACTORS, WHAT PEOPLE GET FROM NICOTINE AND HOW UNCOMFORTABLE IT IS, THAT IS, IF THEY DON'T HAVE NICOTINE, THE WITHDRAWAL SYMPTOMS. SO THOSE ARE -- THAT'S WHAT IS

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MAKING PEOPLE SMOKE CIGARETTES.
ON THE DOWNSIDES ARE HEALTH CONCERNS, THE COST, WHAT FAMILIES AND FRIENDS TELL THEM THAT'S BAD ABOUT SMOKING.
AND ULTIMATELY, EVEN THOUGH THESE DECISIONS ARE NOT CONSCIOUSLY MADE, THESE ARE THE FACTORS THAT WEIGH IN ANY KIND OF DECISION.
WHEN A PERSON -- WELL, LET ME STEP BACK. MOST SMOKERS KNOW THAT SMOKING IS POTENTIALLY HARMFUL, BUT THEY DON'T APPRECIATE NEARLY HOW HARMFUL.
WHEN SOMEONE GETS SICK IN A SERIOUS WAY, THAT ALL OF A SUDDEN IMPACTS ON THEM AND MAKES IT CLEARER THAT "MAYBE THIS IS REALLY MORE OF A RISK FOR ME PERSONALLY THAN I

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THOUGHT IT WAS."
SO HAVING A SEVERE ILLNESS. HAVING A HEART ATTACK, FOR EXAMPLE, IS WHAT WE SAY IS A GOLDEN MOMENT IN TREATING SMOKING, BECAUSE THAT'S THE TIME TO IMPACT SOMEONE AND SAY, "LOOK, YOU HAD A HEART ATTACK. THAT'S CAUSED BY SMOKING. THIS IS THE TIME TO QUIT."
AND THAT'S WHEN YOU GET THE BEST SUCCESS RATES.
SO WHEN SOMEONE HAS A SERIOUS ILLNESS, THAT'S THE TIME WITH THEY'RE MOST LIKELY TO QUIT SMOKING.
Q. NOW, THERE ARE SOME PEOPLE WHO ARE ABLE TO JUST STOP SMOKING?
A. YES.
Q. NO PATCHES, NO GUM, NO COUNSELING, NO PILLS.
DOES THAT MEAN THAT CIGARETTE SMOKING ISN'T ADDICTIVE?

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A. NO. AS IS THE CASE FOR ALL ADDICTIVE DRUGS, THERE IS A SPECTRUM OF SEVERITY OF ADDICTION. AND THERE ARE SOME PEOPLE WHO ARE FORTUNATE, WHO CAN EVEN BE SMOKING A PACK A DAY AND AT SOME POINT IN TIME QUIT AND NOT HAVE SEVERE WITHDRAWAL SYMPTOMS AND DO WELL. THAT'S NOT THE CASE FOR MOST SMOKERS, BUT SOME PEOPLE ARE FORTUNATE.
NOW, WE DON'T KNOW EXACTLY WHY, BUT THERE IS A LOT OF RESEARCH ONGOING ABOUT VULNERABILITY TO ADDICTION, WHAT MAKES SOME PEOPLE MORE ADDICTED THAN OTHERS. WE KNOW THAT A LOT OF IT IS GENETIC, DIFFERENT GENE MAKEUP. AND IT'S CLEAR FROM STUDIES THAT THERE ARE GENETIC FACTORS FOR WHETHER YOU BECOME A SMOKER OR NOT OR WHETHER YOU QUIT OR NOT, EVEN FOR HOW MUCH YOU SMOKE, WHETHER YOU'RE THAT SOMEONE WHO SMOKES LESS THAN FIVE A DAY, OR SMOKES MORE THAN 30 A DAY. THOSE ARE ALL INFLUENCED BY GENETICS.
WE KNOW THAT SOME FACTORS, LIKE DEPRESSION, ALCOHOL USE, ARE THINGS THAT GO ALONG GENETICALLY WITH A VULNERABILITY TO NICOTINE ADDICTION.
SO WE ARE -- AND WE ALSO KNOW THAT THERE ARE SOME FACTORS, SOME GENES INVOLVING DOPAMINE RESEARCH RECEPTORS IN THE BRAIN, SOME GENES INVOLVING HOW FAST THE BODY BREAKS DOWN NICOTINE ARE ALL THINGS THAT SEEM TO INFLUENCE THE VULNERABILITY TO ADDICTION.
AND THIS IS TRUE FOR ALL DRUGS. SO IT MEANS THAT THERE IS A SPECTRUM. SOME PEOPLE CAN SMOKE, AND WHEN THEY WANT TO STOP, CAN STOP WITHOUT A PROBLEM. SOME PEOPLE CAN NEVER STOP NO MATTER WHAT.
AND ACTUALLY,, THE PUBLIC HEALTH COMMUNITY IS

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TALKING ABOUT NICOTINE MAINTENANCE, GIVING THEM MEDICINE, LIFELONG NICOTINE MEDICATIONS INSTEAD OF TOBACCO.
Q. SIMILAR TO WHAT YOU DO WITH SOMEONE WHO IS TRULY ADDICTED TO HEROIN; YOU MIGHT GIVE THEM METHADONE?
A. RIGHT. SO THERE IS A LOT OF TALK IN THE PUBLIC HEALTH COMMUNITY ABOUT MAKING THAT AVAILABLE FOR SOME PEOPLE. AND IN FACT, IT'S BEEN APPROVED -- NICOTINE PRODUCTS HAVE BEEN APPROVED IN THE COUNTRY OF DENMARK FOR THAT PURPOSE IN MAINTENANCE.
AND THEN MOST PEOPLE CAN QUIT EVENTUALLY, BUT THEY HAVE TO TRY OVER AND OVER AGAIN. AND THAT'S THE GROUP THAT WE'RE MOSTLY TREATING.
Q. AND WITH RESPECT TO LESLIE WHITELEY, DO YOU HAVE AN OPINION AS TO WHETHER LESLIE WHITELEY WAS ADDICTED OR DEPENDENT ON NICOTINE FROM CIGARETTES?
A. YES.
Q. AND WHAT IS YOUR OPINION?
A. I THINK SHE WAS HIGHLY ADDICTED.

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Q. GIVE US YOUR BEST OPINION, PLEASE.
A. SHE STARTED SMOKING AT AGE 13. ONE FACTOR IN ADDICTION IS HOW EARLY YOU START SMOKING.
Q. IS 13 AN EARLY AGE?
A. PRETTY EARLY IS PROBABLY AROUND 15. THE AVERAGE IS 18 FOR DAILY SMOKING.
AND SHE WAS SHIFTED SEVERAL YEARS EARLIER THAN THAT.
AND YOU KNOW THAT THE EARLIER YOU START, THE MORE ADDICTED YOU ARE LIKELY TO BE. SHE SMOKED AT 13, PRETTY

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EARLY, A PACK AND A PACK AND A HALF PER DAY. THAT'S A LOT OF CIGARETTES.
THE FAGERSTROM SCALE SAYS THAT SHE HAD -- SHE HAD A CIGARETTE FIRST THING IN THE MORNING. SHE SMOKED ALL DAY LONG. SHE COULDN'T GO MORE THAN AN HOUR OR TWO WITHOUT A CIGARETTE, AND SHE HAD TO LEAVE PLACES WHERE SMOKING WAS NOT ALLOWED AND GO OUT AND HAVE A CIGARETTE. SHE SMOKED WHEN SHE WAS SICK.
ALL OF THOSE THINGS ARE CONSISTENT WITH A PERSON WHOSE SMOKING BEHAVIOR IS DRIVEN BY THE EFFECTS OF NICOTINE.
AND SHE SMOKED FOR 25 YEARS. SHE HAD AT LEAST ONE SERIOUS FAILED QUIT ATTEMPT, WHERE SHE HAD CHARACTERISTIC WITHDRAWAL SYMPTOMS.
SO SHE HAD MANY OF THE CHARACTERISTICS THAT WE KNOW ARE PART OF BEING HIGHLY ADDICTED.
Q. AND IN YOUR PROFESSIONAL OPINION, IN THE WORK THAT YOU'VE DONE, IN 25 YEARS IN NICOTINE AND SMOKING RESEARCH, DO YOU BELIEVE THAT QUITTING SMOKING IS JUST A MATTER OF FREE WILL?
A. WELL, "FREE WILL" IS A FUNNY TERM. FREE WILL IS ALWAYS DETERMINED BY FACTORS THAT INFLUENCE THE DECISION.
Q. TELL US WHAT YOU MEAN BY THAT.
A. WELL, FREE WILL, ANY FREE WILL DECISION -- SAY YOU DECIDE THAT YOU'RE GOING TO SKI DOWN THE BLACK DIAMOND SLOPE ON A MOUNTAIN, BUT PART OF IT IS HOW MUCH EXCITEMENT YOU WANT, PART OF IT IS HOW GOOD A SKIER YOU ARE, PART OF IT IS WHAT KIND OF SHAPE YOU'RE IN, PART OF IT IS WHAT'S THE

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WEATHER LIKE THAT DAY, HOW MUCH SNOW IS ON THE GROUND.
SO IT'S TRUE IT'S A FREE WILL DECISION TO SKI DOWN THAT SLOPE OR NOT, BUT EVERY DECISION IS INFLUENCED BY A LOT OF FACTORS.
AND THE SAME THING ABOUT SMOKING. CLEARLY, PEOPLE MAKE DECISIONS TO SMOKE OR NOT, BUT THOSE DECISIONS ARE INFLUENCED BY HOW ADDICTED THEY ARE, WHAT THEIR BELIEFS ARE ABOUT HOW HARMFUL IT IS, WHAT KIND OF PRESSURES THERE ARE FROM THE FAMILY, WHAT THEIR ILLNESS SITUATION IS. A BUNCH OF FACTORS GO INTO EVERY DECISION.
SO FREE WILL IS REALLY A DECISION BASED ON A LOT OF DIFFERENT FACTORS. AND FOR SMOKERS, THE PROBLEM WITH FREE WILL AND SMOKING IS THAT THEY HAVE A VERY STRONG ADDICTION COMPONENT WHICH SWAYS THE DECISION TO KEEP ON SMOKING.
Q. DOES A LEVEL OF AWARENESS OF WHAT THE RISKS AND HAZARDS ARE GO INTO THAT MIX AS WELL?
A. IT DOES. AND SMOKERS, ALTHOUGH SMOKERS KNOW THAT SMOKE IS NOT GOOD FOR THEM, DO NOT APPRECIATE THE MAGNITUDE OF THE RISK.
THERE HAVE BEEN STUDIES THAT ASK SMOKERS: "IS YOUR RISK OF CANCER AVERAGE OR MORE THAN AVERAGE?" AND MORE THAN 50 PERCENT OF SMOKERS, EVEN THOUGH THEY KNOW SMOKING

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MIGHT CAUSE CANCER SAY: "FOR ME, MY RISK IS AVERAGE." I THINK -- 50 OR 60 PERCENT OF SMOKERS I THINK SAID THAT. "MY RISK OF CANCER IS JUST AVERAGE, THE SAME AS ANYONE ELSE'S."

THE RISK IS THOUGHT OF IN AN ABSTRACT WAY, USUALLY. "MAYBE EVEN SMOKERS IN GENERAL WILL HAVE BAD

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THINGS HAPPENING, BUT FOR ME, IT'S NOT GOING TO AFFECT ME. I FEEL OKAY."

MANY SMOKERS EQUATE RISK WITH HOW THEY FEEL.

MR. HARDY: EXCUSE ME, DOCTOR.

YOUR HONOR, RELUCTANTLY, I THINK WE HAVE TO ASK FOR ANOTHER SHORT SIDEBAR.

(COURT AND COUNSEL CONFER OUTSIDE THE PRESENCE OF THE JURY)

MS. CHABER: CAN I JUST HAVE THE COURT REPORTER READ ME BACK MY LAST QUESTION?

THE COURT: SURE.

IF IT'S OKAY WITH THE JURY -- WE HAD A COUPLE OF INTERRUPTIONS IN THE LAST HOUR AND A HALF. I'D LIKE TO KEEP GOING A LITTLE BIT LONGER BEFORE WE TAKE A RECESS, UNLESS SOMEBODY NEEDS ONE.

IF I DON'T SEE ANY HANDS. I'D LIKE TO GO FOR AT LEAST 15 MINUTES. I SEE NO HANDS. THERE'S ONE KIND OF TENTATIVE.

ARE WE ALL RIGHT FOR 15 MORE MINUTES?

(NO AUDIBLE RESPONSE)

THE COURT: OKAY. SHE WANTS TO HAVE THE LAST QUESTION READ BACK, JUDITH, PLEASE.

MS. CHABER: YES.

(RECORD READ)

MS. CHABER: AND WAS THERE AN ANSWER BEFORE THE OBJECTION?

(RECORD READ)

MS. CHABER: Q. WERE YOU DONE WITH YOUR

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ANSWER?

A. JUST A LITTLE MORE.

Q. OKAY.

A. SMOKERS KNOW THAT -- MANY SMOKERS KNOW THAT THEY CAN BECOME SICK FROM THEIR CIGARETTES, BUT FEEL AS LONG AS THEY'RE FEELING OKAY, AS LONG AS THEY'RE BREATHING OKAY, AS LONG THEY FEEL HEALTHY, THAT THE SMOKING HAS NOT AFFECTED THEM.

MANY SMOKERS SAY, "WELL, IF I START TO FEEL SOME BAD EFFECT FROM SMOKING, I'LL STOP."

THE PROBLEM, OF COURSE, IS THAT IT TAKES A LONG TIME TO DEVELOP THINGS. AND WHEN YOU START TO GET SHORT OF BREATH FROM EMPHYSEMA, YOU'VE ALREADY LOST A LOT OF LUNG TISSUE. WHEN YOU GET SYMPTOMS FROM LUNG CANCER, IT'S ALREADY ESTABLISHED.

BUT IT'S DIFFICULT FOR SMOKERS TO APPRECIATE WHAT THE RISK IS GOING TO BE IN THE FUTURE WHEN THEY'RE FEELING FINE AT THE MOMENT. SO SMOKERS -- MOST SMOKERS REALLY DO NOT FULLY APPRECIATE THE RISKS, EVEN THOUGH THEY KNOW THERE ARE SOME RISKS.

Q. WHAT IS IT THAT KEEPS SMOKERS SMOKING?

A. WHAT KEEPS THEM SMOKING IS NICOTINE ADDICTION. FOR WHATEVER THEY'RE GETTING -- IT VARIES FROM PERSON TO PERSON. WHETHER IT'S THE PLEASURE OF THE CIGARETTE FROM NICOTINE, WHETHER IT'S MOOD CONTROL, STRESS MANAGEMENT, WHATEVER IT IS, THAT'S WHAT KEEPS THEM SMOKING, AND THAT'S WHAT THEY DON'T WANT TO GIVE UP.

Q. BECAUSE A PERSON MIGHT LIKE THEIR CIGARETTE OR

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LIKE A DRUG, DOES THAT MEAN THAT THAT DRUG IS NOT ADDICTIVE?

A. NO. I THINK THAT IS AN IMPORTANT ISSUE, BECAUSE SOMETIMES IT'S SAID, "WELL, A PERSON SMOKES BECAUSE THEY LIKE IT."

WELL, SMOKERS, DRUG ABUSERS GENERALLY, LIKE THE DRUGS THEY'RE TAKING. THE BEST EXAMPLE IS COCAINE. MOST PEOPLE, WHEN THEY TAKE COCAINE, LIKE COCAINE. IN FACT, SOME PEOPLE LIKE IT SO MUCH ONCE THEY START, THEY JUST CAN'T STOP UNTIL THEY GET SICK OR THEY'RE EXHAUSTED.

I THINK MOST SMOKERS COME TO LIKE THE EFFECTS OF NICOTINE, WHETHER IT'S BECAUSE THEY FEEL LESS SICK, THEY LIKE SMOKING. AND THEY DON'T FEEL GOOD WHEN THEY DON'T SMOKE.

SO ALL SMOKERS WILL SAY "I LIKE SMOKING" OR FEEL AT SOME LEVEL THAT THEY LIKE SMOKING.

SO BECAUSE YOU LIKE SOMETHING WOULD, IF ANYTHING, MAKE IT MORE ADDICTIVE RATHER THAN LESS ADDICTIVE.

Q. YOU'VE BEEN INVOLVED WITH PUBLIC HEALTH AND DEALING WITH TOBACCO CONTROL ISSUES FOR MANY YEARS NOW; IS THAT TRUE?

A. YES.

Q. AND IN THE COURSE OF YOUR DEALINGS, HAVE YOU HAD DEALINGS WITH PEOPLE FROM TOBACCO COMPANIES?

A. YES.

Q. HAVE YOU BEEN INVOLVED IN HEARINGS BEFORE GOVERNMENTAL AGENCIES WHERE THERE WERE REPRESENTATIVES OF THE TOBACCO INDUSTRY?

A. YES.

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Q. AND HAVE YOU, IN THE COURSE OF YOUR WORK -- NOT IN THE COURSE OF SOMETHING LIKE THIS, A LAWSUIT, BUT IN THE COURSE OF YOUR WORK IN TOBACCO CONTROL, HAVE YOU HAD OCCASION TO AND THE OPPORTUNITY TO REVIEW INTERNAL DOCUMENTS OF TOBACCO COMPANIES?

A. WELL, I HAVE REVIEWED THEM. I OBTAINED THEM THROUGH LITIGATION BUT -- AND I HAVE BOXES OF THEM -- BUT THEY ALSO ARE QUITE USEFUL FOR MY RESEARCH INTERESTS.

AND SO I USE THEM FOR THAT PURPOSE AS WELL.

Q. HOW HAVE YOU USED THEM FOR YOUR RESEARCH PURPOSES?

A. WELL, FOR EXAMPLE, ON SOME OF THE ISSUES ABOUT WHY PEOPLE SMOKE CIGARETTES, ABOUT THE REINFORCEMENT OF NICOTINE, IT'S CLEAR THAT PEOPLE SMOKE CIGARETTES FOR NICOTINE.

BUT THE QUESTION HAS COME UP: ARE THERE OTHER THINGS IN TOBACCO SMOKE THAT MIGHT PLAY A ROLE?

AND THERE ARE RESEARCH STUDIES FROM PHILIP MORRIS, FOR EXAMPLE, THAT TALK ABOUT THE COMBINATION OF ACETYLCHOLINE, WHICH IS ANOTHER SMOKE COMPONENT, AS WELL AS NICOTINE BEING, IN ANIMAL STUDIES, MORE REINFORCING THAN THE EFFECTS OF NICOTINE ITSELF.

SO IT SUGGESTS THERE MIGHT BE SOMETHING ABOUT THE COMBINATION OF TOBACCO SMOKE THAT MAKES NICOTINE EVEN MORE ADDICTIVE.

MR. HARDY: EXCUSE ME, YOUR HONOR. I OBJECT TO THIS. BASICALLY, I THINK WHAT HE'S DOING IS TESTIFYING ABOUT DOCUMENTS.

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THE COURT: ARE YOU MOVING TO STRIKE?

MR. HARDY: I'M MOVING TO STRIKE.

THE COURT: I'M GOING TO STRIKE THAT LAST ANSWER. YOU MAY DISREGARD IT.

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MS. CHABER: Q. WITHOUT MAKING SPECIFIC REFERENCE TO DOCUMENTS, DOCTOR, CAN YOU TELL US WHAT ACETYLCHOLINE IS?

A. ACETYLCHOLINE IS A COMBUSTION PRODUCT THAT OCCURS WHEN YOU BURN A CIGARETTE.

Q. AND WHAT EFFECT DOES ACETYLCHOLINE HAVE IN THE PRESENCE OF NICOTINE?

A. WELL, ONE OF THE TESTS THAT'S DONE FOR AN ADDICTED DRUG IS TO SEE IF ANIMALS WILL WORK TO GIVE THEMSELVES THE DRUG, WILL SELF-ADMINISTER IT.

AND THEY CAN BE SHOWN TO SELF-ADMINISTER NICOTINE. AND IF YOU MIX ACETYLCHOLINE AND NICOTINE TOGETHER, ANIMALS WILL WORK EVEN HARDER.

SO IT SUGGESTS THAT ACETYLCHOLINE MAKES NICOTINE EVEN MORE REWARDING OR MORE PLEASURABLE OR SOMETHING FOR ANIMALS. AND THAT COULD BE RELATIVE TO HUMANS AS WELL.

Q. HAVE THERE BEEN STUDIES DONE LOOKING AT WHETHER OR NOT ACETYLCHOLINE IS SOMETHING CONTAINED WITHIN CIGARETTES?

A. YES, THERE ARE.

Q. AND IS IT?

A. YES.

Q. AND IS ACETYLCHOLINE JUST A RANDOM -- IS IT A CHEMICAL?

1238

A. YES.

Q. IS IT A RANDOM CHEMICAL THAT IS PART OF THE TOBACCO LEAF?

A. NO. IT'S GENERATED AS PART OF THE BURNING PROCESS.

Q. AND WHEN YOU SAID THAT IN LOOKING AT ANIMAL STUDIES, THERE IS THIS SELF -- GREATER SELF-ADMINISTRATION WHEN YOU HAVE THE COMBINATION OF BOTH NICOTINE AND ACETYLCHOLINE, WHAT DID YOU MEAN BY THAT?

A. WELL, ANIMALS. WHEN YOU TEST ANIMALS FOR SELF-ADMINISTRATION OF THE DRUG, YOU MAKE THEM DO SOMETHING FOR THE DRUG, LIKE PRESS A LEVER OR PUSH A BUTTON OR SOMETHING.

AND YOU CAN SEE HOW HARD THE ANIMAL WILL WORK FOR THE DRUG TO TEST HOW REWARDING IT IS. AND SO IF YOU GIVE ACETYLCHOLINE COMBINED WITH NICOTINE, ANIMALS WILL WORK EVEN HARDER THAN THEY WOULD JUST FOR PURE NICOTINE ITSELF. SO IT DOESN'T OCCUR WITH JUST ACETYLCHOLINE.

ANIMALS DON'T SELF-ADMINISTER THAT VERY MUCH, BUT THE COMBINATION IS MORE REWARDING SEEMINGLY THAN NICOTINE ITSELF.

Q. AND HAVE YOU REVIEWED TOBACCO INDUSTRY DOCUMENTS TO DETERMINE WHETHER OR NOT THEY HAVE DONE STUDIES SIMILAR TO THAT?

A. YES.

Q. AND HAVE THEY?

A. THEY HAVE.

Q. THE CONCEPT OF NICOTINE BEING AN ADDICTIVE DRUG I

1239

KNOW YOU'VE TALKED ABOUT, AND DR. DAVIS DID TO SOME EXTENT.

WITH RESPECT TO THE 1988 SURGEON GENERAL'S REPORT, JUST TO REMIND THE JURY, SINCE WE'VE SEEN A LOT OF THEM, DO YOU HAVE THE COPY UP THERE?

A. I DON'T HAVE IT UP HERE. I HAVE IT IN BY BAG OUTSIDE.

Q. OKAY. WE'LL DO THAT AFTER THE BREAK.

THE COURT: THAT WAS A DOCUMENT THAT YOU PROMISED TO GIVE ME A COPY OF TOO. I DON'T HAVE A COPY YET.

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MR. BROWN: I HAVE IT HERE SOMEWHERE. I ASKED THEM TO GET IT IN A NOTEBOOK.

MS. CHABER: I KNOW WE SUBSTITUTED THAT ONE.

THE COURT: ALL I WAS GOING TO SAY IS, IF YOU ARE GOING TO ASK ANY QUESTIONS ABOUT IT, I'M GOING TO WANT A COPY.

MS. CHABER: I CAN DO THAT AFTER THE BREAK AS WELL, YOUR HONOR.

Q. DOCTOR, ARE YOU FAMILIAR WITH THE USE OF AMMONIA WITH RESPECT TO CIGARETTES?

A. YES.

Q. AND CAN YOU TELL US A LITTLE BIT ABOUT WHAT THAT ENTAILS?

A. WELL, AMMONIA IS ADDED TO CIGARETTES, TO SOME CIGARETTES IN THE MANUFACTURING PROCESS. IT'S ADDED IN PART FOR FLAVOR, AND IN PART TO INCREASE THE IMPACT, WHICH IS SORT OF LIKE THE NICOTINE-RELATED BITE OR SENSATION THAT A PERSON GETS FROM SMOKING A CIGARETTE.

Q. HOW DOES IT DO THAT?

1240

A. NICOTINE IS WHAT'S CALLED A WEAK BASE. IT HAS TO DO WITH AN ACID-BASE BALANCE, AND THERE'S A CONCEPT OF FREE-BASED NICOTINE, WHICH IS NICOTINE THAT'S NOT CHARGED, AND CAN BE IN VAPOR FORM. AND IT IS WHAT CAN IMPACT, SAY, THE MOUTH OR THE THROAT. IT'S ABSORBED MORE EASILY THAT WAY.

AND THEN THERE IS WHAT'S CALLED IONIZED NICOTINE THAT STAYS IN THE TAR PARTICLE.

NOW, THE AMOUNT -- THE AMOUNT OF NICOTINE THAT'S IN THE VAPOR PHASE, WHICH CAN IMPACT THE AIRWAYS AND THAT'S IN THE TAR PARTICLE, DEPENDS ON THE PH OF THE SMOKE.

Q. WHAT'S "PH"?

A. THE PH IS THE ACID-BASE BALANCE. FOR EXAMPLE, IF YOU LOOK AT CIGAR SMOKE, CIGAR SMOKE IS ALKALINE. IT HAS A HIGH PH.

EVEN IF YOU JUST HOLD THE SMOKE IN YOUR MOUTH, YOU ABSORB NICOTINE THROUGH YOUR MOUTH, BECAUSE IT'S MOSTLY IN THE FREE BASE FORM. SO YOU ABSORB --

Q. WHETHER OR NOT YOU INHALE?

A. WHETHER OR NOT YOU INHALE.

CIGARETTE SMOKERS -- MOST AMERICAN CIGARETTES HAVE A LOWER PH THERE. IF YOU HOLD SMOKE IN YOUR MOUTH, YOU DON'T ABSORB IT AT ALL, NOT UNTIL YOU INHALE IT.

ADDING AMMONIA CAN POTENTIALLY AFFECT THE PH. IT CAN MAKE THE PH HIGHER, CAN RESULT IN MORE FREE NICOTINE. IT COULD RESULT IN MORE IMPACT. IN SOME SITUATIONS, IT COULD RESULT IN MORE ABSORPTION OF NICOTINE.

WE THINK THAT'S TRUE FOR, SAY, SMOKELESS

1241

TOBACCOS, CHEWING TOBACCOS OR SNUFF, WHERE THE HIGHER THE PH, THE MORE NICOTINE THAT'S ABSORBED. THE FASTER IT'S ABSORBED -- THAT'S STILL DEBATED, WHETHER IT'S ABSORBED FASTER OR NOT.

WHAT IS CLEAR, IT DOES AFFECT, IMPACT THE NICOTINE EFFECT ON THE THROAT.

Q. WHAT DO YOU MEAN BY "IMPACT"?

A. HOW STRONG A CIGARETTE IS TO THE SMOKER, HOW STRONG THE NICOTINE EFFECT IS.

NOW, THAT'S INTERESTING TO ME IN TERMS OF ADDICTION, BECAUSE THERE'S EVIDENCE THAT IMPACT, SENSORY IMPACT RESULTS IN BRAIN ACTIVATION AS WELL, AROUSAL.

SO THAT EVEN BEFORE NICOTINE IS ABSORBED IN THE BLOODSTREAM, YOU CAN CAUSE AROUSAL EFFECTS IN THE BRAIN.

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AND THE MORE FREE NICOTINE YOU HAVE, THE MORE BRAIN AROUSAL YOU'LL SEE.

SO YOU DON'T EVEN NEED TO ABSORB A LOT OF NICOTINE TO GET SOME NICOTINE EFFECT ON THE BRAIN.

MS. CHABER: THIS MIGHT BE A GOOD TIME, YOUR HONOR.

THE COURT: ALL RIGHT. JURORS, LET'S TAKE A 20-MINUTE RECESS UNTIL 25 MINUTES TO 4:00, AND THEN WE ARE GOING TO GO TO ABOUT 10 TO 5:00 TODAY.

SO PLEASE CONTINUE TO FOLLOW ADMONITION. WE'LL SEE YOU BACK IN 20 MINUTES AT 25 TO 4:00.

(RECESS TAKEN FROM 3:15 TO 3:40 P.M.)

THE COURT: WE ARE BACK ON THE RECORD.

YOU MAY PROCEED, MS. CHABER.

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MS. CHABER: THANK YOU.

Q. DOCTOR, I WANTED TO ASK YOU A QUICK QUESTION ABOUT THE ACETYLCHOLINE AND NICOTINE WORK THAT WE WERE TALKING ABOUT IN TERMS OF ACETYLCHOLINE AND NICOTINE BEING REINFORCERS.

IS THAT HOW YOU DESCRIBED IT?

A. THE COMBINATION BEING MORE REINFORCING THAN NICOTINE ALONE.

Q. WAS THAT WORK PUBLISHED?

A. NOT TO MY KNOWLEDGE.

Q. AND THAT WAS INTERNAL WORK THAT HAD BEEN DONE IN THE TOBACCO COMPANIES?

A. YES.

Q. DOCTOR, ARE YOU FAMILIAR WITH ANALOGS FOR NICOTINE?

A. YES.

Q. WHAT IS THAT?

A. WELL, NICOTINE -- I HAVE TO SAY THERE ARE DIFFERENT SUBTYPES OF RECEPTORS FOR ACETYLCHOLINE OR FOR NICOTINE IN THE BRAIN. SO NICOTINE DOES A LOT OF DIFFERENT THINGS. AND I TALKED ABOUT SOME OF THOSE THINGS LATER -- BEFORE, ACTIVATION, RELAXATION, A BUNCH OF HAVE DIFFERENT TYPES. ALSO, EFFECTS ON BLOOD PRESSURE AND HEART RATES AND A LOT OF OTHER VITAL ORGANS.

IT'S BEEN THOUGHT THAT IF NICOTINE WERE TO BE USED FOR TREATMENT OR EVEN AS A DRUG THAT WOULD BE -- THAT WOULD PRODUCE PLEASURE, IF YOU COULD FOCUS IN ON PARTICULAR RECEPTORS, DRUGS -- NOT NICOTINE, BUT LIKE NICOTINE -- THEY

1243

HAVE EFFECTS THAT ARE EVEN MORE REWARDING, USEFUL TO TREAT SOME MEDICAL DISEASE.

SO A LOT OF DRUGS THAT ARE SIMILAR TO NICOTINE BUT NOT NICOTINE HAVE BEEN EVALUATED FOR DIFFERENT EFFECTS ON THE BRAIN AND BODY CHEMISTRY, ETCETERA.

SO SOMETHING THAT'S LIKE NICOTINE, THAT DOES SOME THINGS LIKE NICOTINE BUT IS NOT NICOTINE EXACTLY, IS CALLED A NICOTINE ANALOG.

Q. AND WHY WOULD YOU WANT TO HAVE A NICOTINE ANALOG? WHY WOULDN'T YOU JUST USE NICOTINE?

A. IF YOU WANTED TO HAVE A DRUG THAT HAD A PURER EFFECT, SAY YOU WANTED AN EFFECT ON MOOD BUT NOT ON BLOOD PRESSURE AND HEART RATE. SO YOU COULD HAVE AN ANALOG THAT DID THAT.

NICOTINE ANALOGS ARE BEING ELEVATED NOW FOR PAIN RELIEF. THERE ARE SOME NICOTINE ANALOGS THAT ARE 1,000 TIMES MORE POTENT THAN MORPHINE THAT ARE BEING EVALUATED AS A MEDICATION. THEY HAVE PAIN-RELIEVING EFFECTS BUT NOT OTHER EFFECTS.

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YOU COULD ALSO HAVE NICOTINE ANALOGS THAT ARE MORE REINFORCING. MAYBE THEY PRODUCE MORE PLEASURE. SO THEY MAY BE SOMETHING THAT YOU MIGHT WANT TO USE FOR PLEASURE OR WHATEVER.

BUT THE POINT IS, YOU CAN MODIFY OR FIND CHEMICALS THAT ARE LIKE NICOTINE, THAT HAVE VERY SPECIFIC EFFECTS WITHOUT OTHER EFFECTS OF NICOTINE.

Q. AND WHEN YOU SAY "WITHOUT OTHER EFFECTS OF NICOTINE," WITHOUT THE HEALTH EFFECTS OF NICOTINE?

1244

A. THAT'S, FOR EXAMPLE, ONE THING YOU MIGHT WANT TO LOOK FOR.

Q. ARE YOU FAMILIAR WITH A DR. LEO ABOOD, A-B-O-O-D?

A. YES.

Q. AND WHO WAS THAT?

A. HE WAS A NEUROCHEMIST AT THE UNIVERSITY OF ROCHESTER WHERE I WAS A MEDICAL STUDENT. AND I KNEW HIM THEN WHEN I WAS A MEDICAL STUDENT IN A VERY GENERAL WAY, BECAUSE A FRIEND OF MINE WAS WORKING IN HIS LABORATORY.

AND THEN I GOT TO KNOW HIM LATER ON, BECAUSE HE DID A LOT OF RESEARCH ON THE EFFECTS OF NICOTINE IN ANIMALS AND DIFFERENT -- LOOKING AT BRAIN EFFECTS. AND HE WAS LOOKING AT NICOTINE AND IS LOOKING AT NICOTINE ANALOGS, DRUGS LIKE NICOTINE BUT NOT NICOTINE.

Q. AND DO YOU KNOW WHO HE WAS DOING THIS RESEARCH FOR?

A. HIS RESEARCH WAS SPONSORED -- I'M NOT SURE IF ALL OF IT, BUT TO A SUBSTANTIAL DEGREE BY PHILIP MORRIS.

Q. DO YOU KNOW WHETHER OR NOT THAT WORK HAS BEEN PUBLISHED?

A. SOME OF IT WAS. I DON'T KNOW IF ALL OF IT WAS.

Q. DO YOU KNOW WHETHER OR NOT DR. ABOOD WAS OF THE OPINION THAT NICOTINE WAS ADDICTIVE?

MR. HARDY: OBJECTION. HEARSAY.

THE COURT: SUSTAINED.

MS. CHABER: Q. DOCTOR, HAVE YOU HAD CONVERSATIONS WITH DR. ABOOD?

A. WELL, HE'S DEAD NOW.

1245

Q. IN THE PAST. I DIDN'T MEAN RECENTLY.

A. YES. I HAVE. I THINK --

THE COURT: DON'T TELL US WHAT HE TOLD YOU.

THE WITNESS: OKAY.

THE COURT: IF THAT'S WHAT YOU ARE ABOUT TO DO. I JUST SUSTAINED THE OBJECTION.

THE WITNESS: YES, I HAVE HAD CONVERSATIONS WITH HIM.

MS. CHABER: Q. AND DID YOU HAVE CONVERSATIONS ABOUT THE WORK HE WAS DOING FOR PHILIP MORRIS WITH RESPECT TO NICOTINE?

A. WELL, I THINK SO. IT'S HARD FOR ME TO TELL WHAT PARTS OF HIS RESEARCH WERE FOR PHILIP MORRIS AND WHAT PARTS OF HIS RESEARCH WERE FOR OTHER SPONSORS OR WHATEVER.

I PUBLISHED A LOT OF HIS WORK. HE PRESENTED WORKS AT MEETINGS. I WAS AWARE OF HIS NICOTINE ANALOG WORK, BUT I CAN'T TELL IF THERE WAS SOME WORK THAT HE DID THAT WAS NOT REVEALED. I DON'T KNOW.

Q. DR. BENOWITZ, IN TERMS OF YOUR WORK ON NICOTINE AND NICOTINE ADDICTION AND SMOKING AND HEALTH ISSUES, YOU'VE BEEN INVOLVED IN THE HEALTH COMMUNITY FOR SOME 25 YEARS; IS THAT CORRECT?

A. YES.

Q. HAS THE HEALTH COMMUNITY BEEN SUCCESSFUL IN

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GETTING THE PUBLIC TO BE AWARE OF THIS PERSONALIZED RISK THAT YOU WERE TALKING ABOUT?

A. WELL, NOT NEARLY AS SUCCESSFUL AS WAS HOPED. LIKE I SAID BEFORE, MOST SMOKERS DON'T THINK

1246

THEY'RE AT GREATER RISK THAN THE AVERAGE PERSON. SO THERE'S NOT BEEN THE SUCCESS THAT WAS HOPED FOR.

Q. AND WHAT ARE THE TYPES OF PROBLEMS IN GETTING PEOPLE TO APPRECIATE OR BE AWARE OF THIS PERSONALIZED RISK?

A. ONE OF THE MAIN PROBLEMS IS SOURCES OF INFORMATION ABOUT RISKS.

FOR EXAMPLE, THE PUBLIC HEALTH SERVICE HAD SAID FOR MANY YEARS THAT SMOKING IS HARMFUL.

OTHER DOCUMENTS FROM THE INDUSTRY, PUBLIC DOCUMENTS, WOULD SAY THAT THE RISKS OF CIGARETTE SMOKING ARE A MATTER OF SCIENTIFIC CONTROVERSY. THEY'RE STILL BEING DEBATED. MORE RESEARCH. NOTHING IS PROVEN AS BEING A RISK IF A PERSON IS ADDICTED AND WANTS TO CONTINUE USING A DRUG.

AND THEY'LL SAY, "WELL, MAYBE IT'S REALLY NOT HARMFUL, BECAUSE, SEE, THERE'S STILL CONTROVERSY."

THEN IT GIVES THEM SORT OF ANOTHER REASON WHY MAYBE IT'S OKAY TO GO ON USING, BECAUSE IT NEED NOT HAVE BEEN PROVEN. SO THEREBY, COUNTERMESSAGES --

MR. FURR: EXCUSE ME, DOCTOR.

YOUR HONOR, I OBJECT. MOVE TO STRIKE. SPECULATIVE, NO FOUNDATION.

THE COURT: I AM GOING TO STRIKE THAT, BECAUSE THERE IS NO FOUNDATION IN THIS RECORD YET FOR THAT TESTIMONY. IT'S WITHOUT PREJUDICE TO YOUR TRYING TO LAY A FOUNDATION. BUT I'M GOING TO STRIKE THE LAST ANSWER, JURORS, WITHOUT PREJUDICE TO YOUR PURSUING THE SUBJECT MATTER.

MS. CHABER: Q. DR. BENOWITZ, HOW IS IT THAT

1247

IT'S COME TO YOUR ATTENTION THAT THERE HAVE BEEN COUNTER --

THE COURT: I STRUCK THAT, SO YOU ARE GOING TO HAVE --

MS. CHABER: THAT'S WHY I STOPPED.

THE COURT: LET ME JUST GET THE WORDS OUT OF MY MOUTH.

WHAT I'M SAYING IS, I STRUCK THE REFERENCE IN YOUR QUESTION. SO YOU ARE GOING TO HAVE TO GO AT IT A DIFFERENT WAY.

MS. CHABER: Q. DOCTOR, IS THERE A SCIENTIFIC CONTROVERSY AS TO WHETHER CIGARETTE SMOKING CAUSES SERIOUS DISEASE IN LARGE NUMBERS OF PEOPLE?

A. NO.

Q. IN YOUR WORK AS A PUBLIC HEALTH SPECIALIST, AND IN YOUR RESEARCH THAT YOU'VE DONE, HAVE THERE, TO YOUR KNOWLEDGE, BEEN STATEMENTS TO THE CONTRARY BY THE TOBACCO INDUSTRY?

A. YES.

Q. AND CAN YOU GIVE US AN IDEA OF WHAT THE STATEMENTS ARE?

A. THE STATEMENTS ARE THAT:

"SMOKING IS A RISK FACTOR. WHETHER SMOKING CAUSES DISEASE HAS NOT BEEN PROVEN IS A MATTER OF SCIENTIFIC CONTROVERSY, AND MORE RESEARCH IS NEEDED."

Q. DOCTOR, IS THERE A MEDICAL OR SCIENTIFIC CONTROVERSY AS TO WHETHER OR NOT NICOTINE IS AN ADDICTIVE DRUG?

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A. NO.
Q. HAVE THERE BEEN STATEMENTS TO THE CONTRARY DISPUTING THAT BY THE TOBACCO INDUSTRY?
A. YES.
Q. AND, DOCTOR, WHAT EFFECT ON THE AWARENESS ON THIS PERSONALIZED LEVEL DO SUCH STATEMENTS CONTRADICTING BOTH CAUSATION AND ADDICTION HAVE ON INDIVIDUALS?
MR. FURR: OBJECTION. NO FOUNDATION.
THE COURT: SUSTAINED.
MS. CHABER: Q. HAVE YOU LOOKED AT THE ISSUE OF WHETHER OR NOT THERE HAS BEEN ANY IMPACT ON PUBLIC AWARENESS ON A PERSONALIZED LEVEL OF STATEMENTS BY THE TOBACCO INDUSTRY CONTRADICTING THE CONSENSUS OF MEDICAL SCIENCE WITH RESPECT TO CAUSATION AND ADDICTION?
A. YES.
Q. AND CAN YOU EXPLAIN THAT.
A. WELL, IT JUST GETS BACK TO THE QUESTION ABOUT WHY DO PEOPLE NOT APPRECIATE THE RISKS THAT ARE PUBLICIZED BY THE PUBLIC HEALTH COMMUNITY? WHY SMOKERS UNDERESTIMATE THE RISK?
AND THIS HAS BEEN DEALT WITH IN SURGEON GENERAL'S REPORTS --
MR. HARDY: I'M SORRY, DR. BENOWITZ.
I THINK THERE'S STILL NO FOUNDATION, YOUR HONOR. ALL HE SAID IS, "YES, I HAVE LOOKED AT IT."
THE COURT: I UNDERSTAND.
AND THE QUESTION WAS: CAN YOU EXPLAIN THAT?
I'M INTERPRETING THAT QUESTION TO MEAN: CAN YOU

1249

EXPLAIN WHAT YOU'VE LOOKED INTO? NOT WHAT CONCLUSIONS HAVE BEEN REACHED OR WHAT CONCLUSIONS YOU REACHED, BUT TO EXPLAIN THE WORK THAT YOU'VE DONE IN STUDYING WHATEVER IT IS IN THIS AREA, SO THAT THE COURT CAN DETERMINE WHETHER THERE'S ANY FOUNDATION FOR THE QUESTION THAT WILL PROBABLY FOLLOW?
IS THAT WHAT YOU MEANT?
MS. CHABER: YES. YES, YOUR HONOR.
THE COURT: SO THE QUESTION IS: WHAT DID YOU DO TO LOOK INTO THAT QUESTION, NOT WHAT RESULTS WERE REACHED --
MS. CHABER: OR WHAT --
THE COURT: -- OR WHAT CONCLUSIONS YOU HAVE OR ANYBODY ELSE, BUT JUST WHAT YOU'VE DONE IN THAT AREA WITH WORK?
THE WITNESS: AGAIN, IT COMES BACK TO THE ISSUE OF UNDERSTANDING ADDICTION AND THE REASONS WHY PEOPLE SMOKE AND NOT SMOKE.
AND ONE OF THE THINGS THAT'S IMPORTANT IS PEOPLE'S PERSONALIZATION OF THE RISKS OF SMOKING CIGARETTES. THERE HAS BEEN A LOT OF RESEARCH DONE. IT'S BEEN REVIEWED IN SURGEON GENERAL'S REPORTS. IT'S ONGOING IN THE STATE OF CALIFORNIA FOR THE PERCEPTIONS OF SMOKERS COMPARED TO NONSMOKERS OF THE RISKS OF SMOKING.
AND SO THERE'S BEEN A LOT OF RESEARCH PUBLISHED ON THAT AREA.
MS. CHABER: Q. AND HAS SOME OF THAT RESEARCH LOOKED AT THE ISSUE OF WHAT STATEMENTS TO THE CONTRARY BY THE TOBACCO INDUSTRY WITH RESPECT TO CAUSATION AND

1250

ADDICTION, WHAT ROLE THAT PLAYS IN THE LACK OF PERCEPTION?
A. YES.
Q. AND CAN YOU TELL US ABOUT THAT.
A. WELL, IT PROVIDES A QUESTION ABOUT HOW RELIABLE THE HEALTH MESSAGE, THE HEALTH -- THE PUBLIC HEALTH MESSAGE

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IS.

ALL DRUG ADDICTS WOULD LIKE TO FIND SOME RATIONALE TO KEEP ON DOING WHAT THEY'RE DOING. AND --

MR. HARDY: EXCUSE ME. AGAIN, DOCTOR, YOUR HONOR, I THINK, IF THIS IS GOING TO PROCEED, THEN I'D LIKE TO ASK TO VOIR DIRE THE WITNESS OUTSIDE THE PRESENCE OF THE JURY. THERE'S NO FOUNDATION FOR HIS TESTIMONY.

THE COURT: I AGREE WITH THAT. THE QUESTION "CAN YOU TELL US ABOUT THAT" IS AMBIGUOUS. YOU CAN'T TELL WHAT'S BEING ASKED.

WHAT YOU NEED TO DO IS MAKE THE OBJECTION WHEN THE QUESTION IS ASKED, NOT WHEN THE WITNESS IS HALFWAY THROUGH THE ANSWER.

IF YOU ARE GOING TO ASK ANYTHING ABOUT THIS, YOU ARE GOING TO NEED TO LAY A FOUNDATION.

THERE'S NO REASON THAT I KNOW OF THAT WE CAN'T TRY TO DO THIS IN FRONT OF THE JURY, THAT WE HAVE TO HAVE A SEPARATE SESSION.

LET ME ASK YOU, DR. BENOWITZ, DO YOU UNDERSTAND, WHEN YOU'RE ASKED WHAT WORK YOU DID OR THE NATURE OF THE STUDIES, YOU ARE NOT BEING ASKED ABOUT THE CONCLUSION OF ANY INDIVIDUAL STUDY OR YOUR OWN OPINION OR ANYBODY'S OPINIONS OR VIEWS? YOU'RE MERELY BEING ASKED WHAT WORK YOU'VE DONE

1251

OR WHAT STUDYING YOU'VE DONE THAT ENABLES YOU TO SAY ANYTHING TO US ON THIS SUBJECT? DO YOU UNDERSTAND THAT DIFFERENCE THERE?

THE WITNESS: YES. I THOUGHT I RESPONDED BY SAYING THAT I HAVE REVIEWED THE SURGEON GENERAL'S REPORTS THAT HAVE DEALT WITH THIS TOPIC EXTENSIVELY, AND I HAVE REVIEWED A NUMBER OF RESEARCH STUDIES THAT HAVE BEEN DONE, MANY IN THE STATE OF CALIFORNIA, ON THE QUESTION OF PEOPLE'S PERCEPTION OF THE RISKS OF CIGARETTE SMOKING.

AND ALL OF THIS IS, I THINK, RESPONSIVE TO THE QUESTION OF MY SOURCE OF INFORMATION.

THE COURT: I THINK, THOUGH, THE QUESTION WAS A MORE SPECIFIC QUESTION, BECAUSE I THINK WHAT COUNSEL IS TRYING TO ASK YOU IS SOMETHING ABOUT THE EFFECT THAT ANYTHING THAT THE TOBACCO INDUSTRY MAY HAVE SAID OR DONE HAD ON THAT SUBJECT.

AND ALL YOU'RE DOING IS IDENTIFYING SOME STUDIES, BUT YOU'RE NOT RELATING THEM TO THE QUESTION THAT COUNSEL, I THINK, IS TRYING TO ASK YOU.

MS. CHABER: Q. WITHIN THE STUDIES THAT YOU'RE REFERRING TO, IS THERE A CONSIDERATION OF WHAT STATEMENTS HAVE BEEN MADE BY THE TOBACCO INDUSTRY DISPUTING CAUSATION AND ADDICTION WITH RESPECT TO CIGARETTES?

A. YES. THAT IS DISCUSSED WITHIN THE SURGEON GENERAL'S REPORTS.

Q. AND WHAT IMPACT, IN YOUR PROFESSIONAL OPINION, DOES THAT HAVE ON PERSONALIZED AWARENESS OF THE RISK OF HARM OF CIGARETTES TO THE INDIVIDUAL?

1252

MR. FURR: OBJECTION. NO FOUNDATION, YOUR HONOR. AND HEARSAY.

THE COURT: ON HEARSAY, HE'S NOT BEING ASKED ABOUT WHAT, IF ANYTHING, THAT IS SAID IN THE SURGEON GENERAL'S REPORT IS, THAT HE IS ONLY BEING ASKED FOR HIS OWN OPINION. IT ISN'T HEARSAY.

SO THAT LEAVES US WITH THE QUESTION: IS THERE A FOUNDATION FOR IT OR NOT?

WHAT I SUGGEST YOU DO, IF YOU WANT, IS ASK HIM SOME MORE QUESTIONS ABOUT WHAT'S IN THE SURGEON GENERAL'S

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REPORTS ON THIS SUBJECT, WITHOUT GOING INTO THE CONTENT OF IT, IF YOU UNDERSTAND THE DISTINCTION THAT I'M MAKING?

MS. CHABER: YOU MEAN THAT DELICATE LITTLE LINE I HAVE TO WALK? YES.

THE COURT: I'M TRYING TO FOLLOW THE LAW HERE.

IN OTHER WORDS, IF THERE'S AN OBJECTION OF LACK OF FOUNDATION, WE NEED TO KNOW A LITTLE BIT ABOUT, IN A GENERAL WAY, WHAT THE SURGEON GENERAL'S REPORTS HAVE DONE IN THIS AREA, DOCTOR, WITHOUT GETTING INTO ANY OPINIONS OR CONCLUSIONS, WHICH YOU ARE NOT BEING ASKED ABOUT AT THIS TIME. OKAY.

MS. CHABER: Q. HAS THAT ISSUE BEEN LOOKED AT WITHIN THE SURGEON GENERAL'S REPORTS WITH RESPECT TO STATEMENTS BY THE TOBACCO INDUSTRY DISPUTING CAUSATION AND ADDICTION?

A. YES, THE ISSUES -- THE BROAD ISSUE, AS I SAID, IS WHY PEOPLE DO NOT UNDERSTAND THE PUBLIC HEALTH MESSAGE THAT SMOKING IS HARMFUL OR IS AS HARMFUL AS THE PUBLIC HEALTH

1253

MESSAGE IS TRYING TO GET ACROSS.

AND WITHIN THAT, THERE ARE CONSIDERATIONS OF THE VARIOUS REASONS WHY THAT'S THE CASE. AND INFORMATION FROM THE TOBACCO INDUSTRY IS ONE OF THOSE CONSIDERATIONS TO EXPLAIN WHY PEOPLE DON'T APPRECIATE THE MAGNITUDE OF THE HEALTH RISK.

THE COURT: WHICH SURGEON GENERAL'S REPORTS ARE YOU TALKING ABOUT?

THE WITNESS: I HAVE TO LOCATE IT. MAYBE --

MS. CHABER: Q. 1989?

A. THE 25 YEARS OF PROGRESS. I THINK IT'S IN THAT REPORT.

Q. AND WHAT YOU'RE IDENTIFYING IS THE 1989 SURGEON GENERAL'S REPORT, 25 YEARS OF PROGRESS.

I BELIEVE THIS HAS BEEN IDENTIFIED PREVIOUSLY, THOUGH I DON'T KNOW THAT WE HAVE MARKED IT.

I CERTAINLY WILL, BUT I'D LIKE TO SUBSTITUTE A COPY FOR THE ORIGINAL.

NOW, DOCTOR, BASED ON THAT INFORMATION AND YOUR INFORMATION THAT YOU'VE ACQUIRED IN YOUR PROFESSIONAL EXPERIENCE, DO YOU HAVE AN OPINION AS TO WHAT IMPACT STATEMENTS BY THE TOBACCO INDUSTRY DISPUTING CAUSATION AND ADDICTION HAVE ON PUBLIC AWARENESS ON A PERSONALIZED LEVEL?

MR. FURR: OBJECTION. NO FOUNDATION.

THE COURT: WELL, IF YOU WANT TO VOIR DIRE ON FOUNDATION, YOU MAY DO SO DO. DO YOU WANT TO DO THAT RIGHT NOW?

MR. FURR: IN THE PRESENCE OF THE JURY?

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THE COURT: IN THE PRESENCE OF THE JURY. WHY NOT?

MR. FURR: NO. WE'LL SAVE IT FOR CROSS, YOUR HONOR.

THE COURT: I'D BE PREPARED TO OVERRULE THAT OBJECTION. HE'S NOT BEING ASKED --

YOU NEED TO UNDERSTAND THIS: YOU'RE NOT BEING ASKED WHAT IS STATED IN THE SURGEON GENERAL'S REPORT. YOU ARE BEING ASKED YOUR OWN OPINION, WHICH IS A DIFFERENT QUESTION.

I'M PREPARED THE ALLOW THIS, UNLESS YOU WANT TO HAVE A SIDEBAR, AND LET YOU DEAL WITH IT IN CROSS, UNLESS YOU WANT TO VOIR DIRE ON FOUNDATION. AND I'LL LET YOU DO THAT AS WELL, IF YOU WANT, RIGHT NOW.

MR. FURR: THANK YOU. WE'LL SAVE IT FOR CROSS.

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MR. HARDY: WE'LL SAVE IT FOR CROSS, WITH JUST ONE OTHER THING, YOUR HONOR.
THE LAST QUESTION WAS, I BELIEVE, A CHANGE FROM THE EARLIER TOPIC.
I THINK MS. CHABER ASKED IF HE HAD AN OPINION AS TO WHAT EFFECT THAT ACTIVITY BY THE COMPANIES HAS, AS THOUGH IT IS PRESENT.
THE COURT: OKAY.
MR. FURR: AND PREVIOUSLY, I UNDERSTOOD IT TO BE PAST. I'D JUST LIKE A CLARIFICATION AS TO TIME.
THE COURT: IF THE WITNESS --
MR. HARDY: ARE WE TALKING ABOUT PRESENT EFFECT?

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THE COURT: IF THE WITNESS IS REFERENCING A 1989 REPORT, ARE YOU ASKING HIM ABOUT A PERIOD OF TIME IN THAT VICINITY? ARE YOU ASKING HIM FOR THE PRESENT TIME?
MS. CHABER: Q. WELL, I SUPPOSE I COULD ASK THE FOLLOW-UP QUESTION OF: DO YOU BELIEVE THE CIRCUMSTANCES HAVE CHANGED BETWEEN 1989 AND NOW?
A. I DIDN'T ANSWER THE FIRST QUESTION.
AM I TO ANSWER THIS ONE?
Q. RIGHT. I'M NOT CLEAR. IS THE VOIR DIRE --
THE COURT: THE ONLY REASON -- I DIDN'T MEAN TO MAKE THIS COMPLICATED. I THINK MR. HARDY'S POINT IS THAT YOUR QUESTION IS NOT CLEAR AS TO THE TIME REFERENCE, BECAUSE YOU SEEM TO BE SPEAKING IN THE PRESENT TENSE.
HE WAS REFERENCING A 1989 REPORT, SO IT'S NOT CLEAR WHAT YOU ARE ASKING HIM.
MS. CHABER: Q. DR. BENOWITZ, DO YOU HAVE AN OPINION ABOUT WHAT EFFECT THE TOBACCO INDUSTRY'S STATEMENTS DISPUTING CAUSATION AND ADDICTION HAVE HAD ON PUBLIC AWARENESS ON A PERSONALIZED LEVEL?
A. YES.
Q. AND WHAT IS THAT OPINION?
A. I THINK THAT THE INDUSTRY STATEMENTS HAVE UNDERMINED THE PUBLIC HEALTH MESSAGE TO THE RESULT THAT PEOPLE ARE IN MORE DOUBT ABOUT WHETHER THE PUBLIC HEALTH MESSAGE IS CORRECT, AND ARE LESS LIKELY TO TAKE IT SERIOUSLY.
Q. AND DO YOU BELIEVE THAT THAT EXISTS AT THE PRESENT TIME AS WELL?

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A. I DO.
MS. CHABER: NOTHING FURTHER.
THE COURT: OKAY. WHO GOES --
(ATTORNEYS CONFER)
MS. CHABER: WAIT. WAIT. WAIT. MY CO-COUNSEL --
THE COURT: DID YOU CHANGE YOUR MIND?
MS. CHABER: Q. LET ME JUST ASK YOU TWO QUICK QUESTIONS, DR. BENOWITZ.
THE USE OF THE WORD "CAUSE" IN THE SENTENCE "CIGARETTE SMOKING CAUSES LUNG CANCER," IS THAT A WORD THAT YOU KNOW, UNDERSTAND, AND ARE ABLE TO RESPOND TO THAT QUESTION?
A. YES.
Q. AND DO YOU BELIEVE IT IS THE MEDICAL AND SCIENTIFIC CONSENSUS THAT CIGARETTE SMOKING CAUSES LUNG CANCER?
A. YES.
Q. AND HEART DISEASE?
A. YES.

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Q. AND OTHER SERIOUS HEALTH DISEASES?
A. ABSOLUTELY.
Q. AND, DR. BENOWITZ, DO YOU HAVE ANY DIFFICULTY UNDERSTANDING WHAT THE WORD "ADDICTION" MEANS IN RELATION TO NICOTINE?
A. NO.
Q. DO YOU THINK IT HAS SOME SPECIALIZED MEANING WHEN YOU'RE TALKING ABOUT CIGARETTE SMOKING?

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A. NO.
Q. AND WOULD YOU HAVE -- DO YOU BELIEVE THAT THE MEDICAL AND SCIENTIFIC CONSENSUS IS THAT CIGARETTE SMOKING IS ADDICTIVE?
A. YES. SOME SCIENTISTS PREFER THE WORD "DEPENDENCE." BUT I DON'T THINK ANYONE ARGUES WITH THE CONCEPT OF IT BEING ADDICTIVE THE WAY I DEFINED IT, WHICH WOULD BE EQUIVALENT TO CAUSING DEPENDENCE.
Q. AND, SIR, WHEN YOU USE THE TERM "ADDICTIVE" OR "DEPENDENT," ARE YOU TALKING ABOUT SOMEBODY WHO LIKES TO EAT JELLY BEANS OR GUMMY BEARS OR SOMETHING ELSE?
A. NO.
Q. WHAT ARE YOU TALKING ABOUT?
A. WELL, FIRST OF ALL, I HAVE BEEN TALKING ABOUT DRUG ADDICTION, DRUG DEPENDENCE.
AND I'M TALKING ABOUT A BEHAVIOR THAT DEVELOPS IN THE PRESENCE OF A DRUG, AS A CONSEQUENCE OF DRUG USE, AND A BEHAVIOR THAT RESULTS IN DIFFICULTY STOPPING DRUG USE.
ALSO, A SITUATION WHERE THE PERSON NEVER, EVER HAD TO HAVE THE DRUG. I THINK THIS IS IMPORTANT, BECAUSE SOME PEOPLE LIKE TO TALK ABOUT FOOD ADDICTIONS. EVERYONE HAS TO EAT. SOME PEOPLE HAVE TROUBLE CONTROLLING HOW MUCH THEY EAT. BUT THERE'S NO WAY TO AVOID FOOD. AND IF YOU HAVE TROUBLE CONTROLLING YOUR EATING, THAT'S A PROBLEM, BUT IT'S NOT A DRUG ADDICTION.
NO ONE EVER HAS TO HAVE NICOTINE. THE WORLD WOULD DO JUST FINE WITHOUT NICOTINE. ONCE PEOPLE GET NICOTINE, THEY HAVE TROUBLE CONTROLLING ITS USE. THAT'S A

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DRUG ADDICTION.
MS. CHABER: THANK YOU, DOCTOR.
THE COURT: OKAY, LET'S DO A HOUSEKEEPING MATTER. LET'S MARK FOR IDENTIFICATION PURPOSES THE SEVERAL SHEETS OF PAPER THAT DR. BENOWITZ WROTE ON THE BOARD, ON THESE PAPERS DURING THE COURSE OF HIS DIRECT EXAMINATION.
HOW MANY PAGES ARE THERE?
MS. CHABER: THANK YOU, YOUR HONOR.
THE COURT: AND THAT WILL BE PLAINTIFFS' 1821 FOR IDENTIFICATION.
HOW MANY PAGES?
MS. CHABER: WE HAVE THREE.
THE COURT: WE'LL MARK THAT AS A GROUP EXHIBIT. AND IF WE ARE DONE WITH IT, WE CAN TAKE IT DOWN AND HAVE IT MARKED.
OR DO YOU WANT TO LEAVE ALL THE DRAWINGS UP THERE?
MS. CHABER: WE MIGHT AS WELL. I THINK SOME HAVE BEEN RIPPED OUT.
WE CAN DO IT AT THE END OF THE DAY. THESE RIGHT HERE.
THE CLERK: THIS ONE?
MS. CHABER: YES.
THE COURT: THE THING IS, THOUGH, IF WE DON'T TAKE IT, THEN TATSUO FIGURES OUT HOW MANY PAGES WILL GO

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LATER ON.
I SUGGEST WE JUST TAKE IT DOWN AND MAINTAIN THE INTEGRITY.

MS. CHABER: I RIPPED IT. THAT'S WHY I WAS TRYING NOT TO DO THIS NOW, YOUR HONOR.
THE COURT: I THINK SOME OF THE OTHERS UP THERE HAVEN'T BEEN MARKED.
MS. CHABER: I THINK SOME OF THE OTHERS UP THERE, YOUR HONOR, ARE ATTORNEYS' MARKINGS.
THE COURT: HOPEFULLY, THEY ARE, BECAUSE IF ANY HAVE BEEN MARKED, WE OUGHT TO TAKE IT DOWN SO WE HAVE IT SEPARATELY.
MS. CHABER: YOUR HONOR, I SEE NOTHING THAT WAS CREATED BY AN EXPERT. SO THEN THERE ARE TWO MORE.
DO YOU WANT ME TO PULL THEM DOWN?
THE CLERK: I WILL DO THOSE LATER.
THE COURT: THERE'S THREE PAGES?
MS. CHABER: YES, YOUR HONOR.
(DOCUMENT MORE PARTICULARLY LISTED IN THE INDEX MARKED FOR IDENTIFICATION PLAINTIFFS' EXHIBIT # 1821)
THE COURT: IF WE COULD JUST MOVE THE STAND, SO I CAN SEE COUNSEL.
THANKS.
MS. CHABER: IS THAT OKAY?
THE COURT: PERFECT.
OKAY. WHO IS NEXT?
MR. FURR: I WILL BE FIRST, YOUR HONOR.
THE COURT: MR. FURR.

CROSS-EXAMINATION

BY MR. FURR: Q. GOOD AFTERNOON, DR. BENOWITZ.
A. GOOD AFTERNOON.
Q. YOU AND I HAVE MET BEFORE. MY NAME IS JEFF FURR. I'M A LAWYER REPRESENTING R.J. REYNOLDS.
A. YES.
Q. DR. BENOWITZ, YOU TOLD US THAT YOU ARE A PROFESSOR OF MEDICINE AND PSYCHIATRY; IS THAT CORRECT, SIR?
A. YES.
Q. BUT YOU DON'T ACTUALLY PRACTICE PSYCHIATRY, DO YOU, SIR?
A. NO.
Q. YOU HAVE THAT APPOINTMENT BECAUSE YOU DO RESEARCH RELATED TO NICOTINE; CORRECT, SIR?
A. YES.
Q. OTHER DOCTORS DON'T REFER PATIENTS TO YOU FOR PSYCHIATRIC EVALUATIONS, DO THEY, SIR?
A. NO.
Q. OTHER DOCTORS DON'T REFER PATIENTS TO YOU FOR EVALUATIONS AS TO WHETHER THE PATIENT QUALIFIES AS DEPENDENT UNDER DSM-IV, DO THEY, SIR?
A. CERTAINLY NOT UNDER DSM-IV. BUT NO. NO.
Q. YOU DID TALK ABOUT THE APPLICATIONS OF DSM-IV TO MRS. WHITELEY TODAY, DIDN'T YOU, SIR?
A. YES.
Q. YOU DON'T ACTUALLY SPEND A LOT OF TIME DIAGNOSING PATIENTS USING DSM-IV, DO YOU, DR. BENOWITZ?
A. NO.

Q. IT'S OBVIOUS, YOU DO A LOT OF RESEARCH ON

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NICOTINE, DON'T YOU, SIR?
A. YES.
Q. BUT YOU DON'T ACTUALLY SPEND A LOT OF TIME TREATING ADDICTED PATIENTS, DO YOU, SIR?
A. JUST MY MEDICINE PATIENTS WHO HAVE TOBACCO ADDICTION.
Q. THERE ARE PHYSICIANS WHO SPECIALIZE IN THE TREATMENT OF PATIENTS WHO ARE DEPENDENT UPON OR ADDICTED TO SUBSTANCES, AREN'T THERE, SIR?
A. YES.
Q. INCLUDING PSYCHIATRISTS WHO SPECIALIZE IN THE TREATMENT OF PATIENTS WHO ARE DEPENDENT UPON OR ADDICTED TO CERTAIN SUBSTANCES; CORRECT, SIR?
A. THERE SOME PSYCHIATRISTS THAT DO THAT, YES.
Q. THERE ARE PHYSICIANS WHO -- BASICALLY, THERE ARE PHYSICIANS WHO SPECIALIZE IN ADDICTION MEDICINE; CORRECT, SIR?
A. YES.
Q. BUT THAT'S NOT THE TYPE OF PHYSICIAN YOU ARE, IS IT?
A. CORRECT.
Q. YOUR MEDICAL SPECIALTY IS CARDIOVASCULAR MEDICINE; CORRECT, DR. BENOWITZ?
A. YES.
Q. NOW, YOU TALKED TODAY ABOUT THE CAUSE OF MRS. WHITELEY'S LUNG CANCER, DIDN'T YOU, SIR?
A. YES.

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Q. YOU ARE NOT SPECIALIZED IN DETERMINING THE CAUSE OF PATIENTS' CANCERS, ARE YOU, SIR?
A. A SPECIALIST IN? NO.
IN INTERNAL MEDICINE, AS A PERSON WHO HAS BEEN INVOLVED IN TOBACCO RESEARCH, I CERTAINLY HAVE OPINIONS ABOUT IT, BUT I'M NOT REFERRED PATIENTS TO MAKE A DIAGNOSIS.
Q. THAT IS MY POINT. IT'S OBVIOUS THAT YOU HAVE OPINIONS, BUT OTHER DOCTORS DON'T REFER PATIENTS TO YOU FOR ASSISTANCE IN DETERMINING THE CAUSE OF THE CANCER, DO THEY, SIR?
A. THAT'S CORRECT.
Q. YOU WERE NOT INVOLVED IN THE DIAGNOSIS OR TREATMENT OF MRS. WHITELEY'S LUNG CANCER, WERE YOU, DR. BENOWITZ?
A. NO.
Q. NONE OF HER PHYSICIANS REFERRED HER TO YOU FOR ASSISTANCE IN TREATING WHAT YOU BELIEVE TO HAVE BEEN HER NICOTINE DEPENDENCE, DID THEY, SIR?
A. NO.
Q. YOU NEVER CONDUCTED ANY TYPE OF PHYSICAL OR MENTAL EXAMINATION OF MRS. WHITELEY, DID YOU, SIR?
A. NO.
Q. YOU HAVE NEVER INTERVIEWED HER ABOUT HOW OR WHY SHE USED AND QUIT USING MARIJUANA AND ALCOHOL AND OTHER DRUGS, DID YOU, SIR?
A. NO.
Q. DID YOU EVER MEET MRS. WHITELEY?
A. NO.

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Q. THE OPINIONS THAT YOU'VE OFFERED US TODAY WITH RESPECT TO MRS. WHITELEY ARE IN LARGE PART BASED UPON THE TESTIMONY THAT SHE AND OTHERS HAVE GIVEN IN DEPOSITION; IS THAT CORRECT, SIR?
A. AND HER INTERROGATORIES.
Q. AND HER INTERROGATORY RESPONSES?

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A. YES.
Q. YOU'RE HERE AT THE REQUEST OF PLAINTIFFS' COUNSEL; CORRECT, DOCTOR?
A. YES.
Q. AND YOU'RE BEING COMPENSATED FOR YOUR TIME, AREN'T YOU, SIR?
A. YES.
Q. AM I CORRECT THAT YOU'RE BEING COMPENSATED --
A. YES.
Q. -- AT THE RATE OF $500 PER HOUR?
A. YES.
Q. -- FOR YOUR TESTIMONY AT DEPOSITION AND IN TRIAL HERE TODAY, SIR?
A. YES.
Q. DR. BENOWITZ, JUST TO MAKE IT EASIER ON THE COURT REPORTER, PLEASE DO YOUR BEST TO WAIT UNTIL I'M FINISHED BEFORE YOU ANSWER, BECAUSE SHE HAS DIFFICULTY GETTING US BOTH AT THE SAME TIME. OKAY?
A. I APOLOGIZE.
Q. I TOOK YOUR DEPOSITION IN THIS CASE; CORRECT, DOCTOR?
A. YES.

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Q. AND YOU CHARGED ME AT THE RATE OF $500 AN HOUR TO TAKE YOUR DEPOSITION; IS THAT CORRECT, SIR?
A. YES.
Q. AND THAT WAS FOR FIVE AND A HALF HOURS OR SO THAT I TOOK YOUR DEPOSITION?
A. I THINK SO, YES.
Q. OKAY. NOW, TODAY, YOU DID COME HERE AND TESTIFY THAT MRS. WHITELEY WAS ADDICTED OR DEPENDENT ON NICOTINE; CORRECT?
A. YES.
Q. AND YOU DID SO WITHOUT EVER HAVING PHYSICALLY OR MENTALLY EVALUATED MRS. WHITELEY; CORRECT, SIR?
A. YES.
MS. CHABER: YOUR HONOR, COULD WE HAVE A SIDEBAR, PLEASE?
THE COURT: YES.
MS. CHABER: I BELIEVE THIS WAS A TOPIC --
THE COURT: OKAY. WE'LL HAVE A SIDEBAR.
(COURT AND COUNSEL CONFER OUTSIDE THE PRESENCE OF THE JURY)
MR. FURR: YOUR HONOR, COULD I HAVE THE LAST QUESTION AND ANSWER READ BACK, PLEASE.
THE COURT: YES, YOU MAY.
(RECORD READ)
MR. FURR: Q. OKAY, DR. BENOWITZ. NEW TOPIC. YOU TESTIFIED AT SOME LENGTH TODAY ABOUT THE DIFFICULTY THAT SOME SMOKERS HAVE QUITTING SMOKING; CORRECT, SIR?

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A. YES.
Q. YOU TESTIFIED THAT IT CAN BE VERY DIFFICULT FOR SOME SMOKERS TO QUIT; CORRECT?
A. YES.
Q. BUT TO BE CLEAR, YOU'RE NOT TESTIFYING THAT SMOKERS CAN'T QUIT SMOKING, ARE YOU, SIR?
A. MOST SMOKERS -- WELL, UNDER PROPER CIRCUMSTANCES, ANY SMOKER CAN QUIT. IN REAL LIFE, SMOKERS CAN QUIT.
BUT I THINK THERE MAY BE SOME PERCENTAGE WHO CAN'T, AND THOSE I TALKED ABOUT BEFORE AS CANDIDATES FOR NICOTINE MAINTENANCE TREATMENT.

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Q. MOST SMOKERS CAN QUIT SMOKING; CORRECT, SIR?
A. YES.
Q. SMOKERS CAN AND DO QUIT SMOKING EVERY DAY, DON'T THEY, SIR?
A. YES.
Q. (WRITING ON BOARD) ISN'T IT CORRECT, SIR, THAT ABOUT 1.3 MILLION SMOKERS OR SO QUIT SMOKING EVERY YEAR, SIR?
A. SOMETHING LIKE THAT.
Q. OKAY. THAT'S OVER 100,000 A MONTH; CORRECT?
A. YES.
Q. LET'S TAKE IT ONE STEP FARTHER.
THAT'S OVER 3,000 SMOKERS A DAY WHO QUIT SMOKING, SIR?
A. YES.
Q. AND THOSE ARE PEOPLE WHO QUIT SMOKING FOR GOOD; CORRECT, DR. BENOWITZ?

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A. YES.
Q. EVEN PERSONS THAT YOU BELIEVE TO HAVE BEEN HEAVILY ADDICTED TO SMOKING CAN QUIT SMOKING, CAN'T THEY, SIR?
A. YES, MOST OF THEM.
Q. I BELIEVE THAT YOUR OPINION IS THAT OVER 90 PERCENT OF ALL SMOKERS ARE HEAVILY ADDICTED; IS THAT CORRECT?
A. 90 PERCENT OF SMOKERS WHO SMOKE A PACK A DAY.
Q. 90 PERCENT WHO SMOKE A PACK A DAY.
BUT YOU BELIEVE THAT, EVEN AMONG HEAVILY OR HIGHLY ADDICTED SMOKERS WHO SMOKE A PACK A DAY, THAT MOST IF NOT ALL OF THEM CAN QUIT UNDER THE RIGHT CIRCUMSTANCES, CAN'T THEY, SIR?
A. YES. IT'S NOT EASY. IT OFTEN TAKES MANY ATTEMPTS. BUT I THINK MOST CAN.
Q. YOU WOULD AGREE, DR. BENOWITZ, THAT THE QUESTION OF WHETHER NICOTINE IS AN ADDICTIVE SUBSTANCE OR A DEPENDENCE-PRODUCING SUBSTANCE IS A DIFFERENT QUESTION THAN WHETHER MRS. WHITELEY COULD HAVE QUIT SMOKING, ISN'T IT, SIR?
A. YES, TOTALLY DIFFERENT.
Q. NOW, AMONG THOSE 3,000 OR SO SMOKERS PER DAY WHO QUIT, MOST OF THOSE PEOPLE ARE ABLE TO QUIT WITHOUT ANY PROFESSIONAL ASSISTANCE OF ANY TYPE; CORRECT, SIR?
A. YES.
Q. THEY DON'T NEED ANY TYPE OF NICOTINE REPLACEMENT, DO THEY, SIR?

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A. CORRECT.
Q. THEY DON'T NEED ANY TYPE OF PSYCHOLOGICAL COUNSELING THAT YOU MENTIONED TODAY, DO THEY, SIR?
A. CORRECT.
Q. THEY CERTAINLY DON'T NEED TO GO TO SOME TYPE OF DETOX HOUSE TO KEEP FROM SMOKING, DO THEY, SIR?
A. NO.
Q. MOST OF THEM DON'T EVEN NEED THE ASSISTANCE THAT CAN BE PROVIDED BY A STOP SMOKING CLINIC, DO THEY, DOCTOR?
A. CORRECT.
Q. DR. BENOWITZ, OBVIOUSLY, YOU ADVISE YOUR PATIENTS TO QUIT SMOKING, DON'T YOU?
A. YES.
Q. AND I TAKE IT THAT WHEN YOU DO SO, YOU DON'T TELL THEM THAT THEY WILL BE UNABLE TO QUIT SMOKING, DO YOU?
A. NO.

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Q. AND I ASSUME, DR. BENOWITZ, THAT WHEN YOU ADVISE YOUR PATIENTS TO QUIT SMOKING, YOU DON'T CALL THEM ADDICTS, DO YOU, SIR?
A. NO. SOMETIMES MY PATIENTS MIGHT REFER TO THEMSELVES AS ADDICTS, BUT NOT -- I DON'T. I JUST TALK ABOUT CHANGING THEIR BEHAVIOR.
Q. YOU WOULDN'T CALL THEM ADDICTS, WOULD YOU, SIR?
A. NO. IF IT CAME UP, I MIGHT SAY THAT, "IF YOU ARE ADDICTED TO NICOTINE, IT'S HARD TO QUIT." BUT IT DOESN'T COME UP IN THAT WAY. WE JUST STOP THE SMOKING. YOU JUST TRY TO STOP THE BEHAVIOR.
Q. DR. BENOWITZ, DID I HEAR CORRECTLY, SIR, THAT FOR

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YOUR SMOKING PATIENTS, THAT YOU ADVISE THEM OF THE HEALTH HAZARDS OF SMOKING AND THE BENEFITS WHICH THEY COULD OBTAIN BY QUITTING ON VIRTUALLY EVERY OFFICE VISIT THAT THEY HAVE?
A. YES.
Q. IN FACT, SIR, THAT'S ONE OF THE TYPES OF ADVICE THAT PHYSICIANS ARE SUPPOSED TO OFFER THEIR PATIENTS, ISN'T IT?
A. YES.
Q. AND PHYSICIANS IN CALIFORNIA HAVE BEEN OFFERING THEIR PATIENTS THAT TYPE OF ADVICE FOR SOME TIME, HAVEN'T THEY, DR. BENOWITZ?
A. NOT AS UNIFORMLY AS WE LIKE, BUT I THINK MANY DO, AND MORE AND MORE ARE DOING IT.
Q. DR. BENOWITZ, ISN'T IT CORRECT THAT THERE HAVE BEEN MANY PHYSICIANS THAT HAVE GIVEN THEIR PATIENTS THAT TYPE OF ADVICE IN CALIFORNIA SINCE THE MID-1970S?
A. YES.
Q. LET'S TALK JUST VERY BRIEFLY ABOUT WHY PEOPLE START SMOKING.
I THINK IT'S OBVIOUS THAT PEOPLE DON'T START SMOKING BECAUSE OF NICOTINE, DO THEY, SIR?
A. CORRECT.
Q. A MAJOR REASON THAT PEOPLE BEGIN SMOKING IS BECAUSE OF BEING INFLUENCED BY THEIR PEERS; IS THAT CORRECT?
A. YES.
Q. AND I BELIEVE YOU TESTIFIED IN THE PAST THAT THE MAJOR DETERMINANT AS TO WHETHER OR NOT SOMEONE WILL BECOME A SMOKER IS WHETHER THEIR BEST FRIENDS SMOKE; IS THAT CORRECT,

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DOCTOR?
A. THAT'S IF THEY -- THAT'S THE BEST DETERMINANT OF WHETHER SOMEONE WILL EXPERIMENT WITH CIGARETTES, YES.
Q. AND YOU'VE TALKED A LOT ABOUT NICOTINE TODAY, DOCTOR.
BUT TO BE CLEAR, THE 3,000 A DAY OR SO SMOKERS WHO STOP FOR GOOD EACH DAY WERE ALL FORMERLY SMOKING CIGARETTES WITH NICOTINE; CORRECT?
A. YES.
Q. THE PRESENCE OF NICOTINE IN CIGARETTES DOES NOT PREVENT A SMOKER FROM READING OR UNDERSTANDING THE WARNINGS WITH RESPECT TO CIGARETTES, DOES IT?
A. NO.
Q. OKAY. YOU'RE FAMILIAR WITH THE WORD --
THE COURT: EXCUSE ME. LET ME INTERRUPT.
MR. ROYALE, I JUST WANT TO BE SURE. A LOT OF PEOPLE CAN PAY ATTENTION WITH THEIR EYES SHUT. I JUST WANT TO BE SURE THAT YOU ARE ONE OF THEM. OKAY.
MR. FURR: Q. (WRITING ON BOARD)
DR. BENOWITZ, YOU ARE FAMILIAR WITH THE TERM "COGNITIVE," AREN'T YOU, SIR?

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A. YES.
Q. AND THAT'S THE TERM THAT'S USED TO DESCRIBE THE THINKING PROCESS, ISN'T IT?
A. YES.
Q. IT'S A TERM THAT'S USED TO DESCRIBE A PERSON'S ABILITY TO THINK AND ANALYZE INFORMATION AND TO SOLVE PROBLEMS; CORRECT?

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A. YES.
Q. THOSE ARE ALL WHAT YOU WOULD DESCRIBE AS COGNITIVE BEHAVIOR, AREN'T THEY?
A. YES.
Q. SMOKING CIGARETTES AND NICOTINE DOES NOT INTERFERE WITH AN INDIVIDUAL'S COGNITIVE PROCESSES, DOES IT, DOCTOR?
A. NOT SMOKING. SOMETIMES WITHDRAWAL CAN, BUT NOT NICOTINE ITSELF.
Q. SMOKING CIGARETTES AND NICOTINE DOES NOT INTERFERE WITH A PERSON'S ABILITY TO UNDERSTAND AND APPRECIATE THE WARNINGS WITH RESPECT TO CIGARETTES, DOES IT?
A. WELL, AGAIN, IT COMES BACK TO WHAT WE WERE TALKING ABOUT BEFORE.
IT CERTAINLY DOES NOT IMPAIR THEIR ABILITY TO READ AND TO UNDERSTAND THE WORDS.
THE ADDICTION AND THE ENVIRONMENT MAY INFLUENCE HOW THEY INTERPRET THE WORDS.
Q. IT DOES NOT INTERFERE WITH THEIR ABILITY TO READ -- SMOKING AND NICOTINE DOES NOT INTERFERE WITH AN INDIVIDUAL'S ABILITY TO HEAR WARNINGS ABOUT THE HEALTH RISKS OF SMOKING THAT THEY RECEIVE FROM THEIR DOCTORS OR FRIENDS, OR PARENTS, FOR THAT MATTER, DOES IT?
A. NO.
Q. NOW, YOU'VE TESTIFIED A BIT ABOUT SMOKERS' UNDERSTANDING OF THE HEALTH RISKS OF SMOKING.
BUT ISN'T IT ALSO TRUE, DR. BENOWITZ, THAT YOU'VE SEEN RESEARCH THAT INDICATES THAT SMOKERS SOMETIMES ACTUALLY

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OVERESTIMATE THE HEALTH RISKS OF SMOKING?
A. I THINK THAT CAN HAPPEN, BUT IT'S UNCOMMON. MOST PEOPLE UNDERESTIMATE.
Q. BUT YOU HAVE SEEN SOME RESEARCH INDICATING THAT SOME SMOKERS OVERESTIMATE THE HEALTH RISKS --
A. SOME SMOKERS MAY.
Q. -- OF SMOKING; CORRECT, DOCTOR?
A. YES.
Q. NOW, SMOKING AND NICOTINE ALSO DOES NOT INTERFERE WITH SOMEONE'S ABILITY TO BE AWARE OF OR UNDERSTAND THAT THERE ARE VARIOUS TYPES OF ASSISTANCE THAT CAN BE USED TO STOP SMOKING, DO THEY?
A. NO.
Q. SMOKING AND NICOTINE DO NOT INTERFERE WITH THE ABILITY OF SOMEONE TO MAKE A PLAN WITH RESPECT TO HOW THEY WILL GO ABOUT STOPPING SMOKING, DOES IT, DR. BENOWITZ?
A. NO.
Q. LET ME ASK YOU ABOUT ANOTHER TERM.
(WRITING ON BOARD)
YOU'RE FAMILIAR WITH THE TERM "MOTIVATION," AREN'T YOU, SIR?
A. YES.
Q. NOW, WITH RESPECT TO STOPPING SMOKING, MOTIVATION OF THE INDIVIDUAL IS A VERY IMPORTANT FACTOR, ISN'T IT?
A. YES.
Q. IN FACT, YOU WOULD AGREE, DR. BENOWITZ, THAT THE

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MOTIVATION LEVEL OF THE PERSON WHO IS ATTEMPTING TO STOP SMOKING IS MORE IMPORTANT THAN THE USE OF ANY TYPE OF

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NICOTINE REPLACEMENT, FOR EXAMPLE?

A. MORE IMPORTANT THAN WHAT?

Q. TO THEIR ABILITY TO STOP.

A. WELL, IN VARIOUS STUDIES, CERTAINLY MOTIVATION IS AN IMPORTANT PREDICTOR OF OUTCOME.

Q. IN FACT, DR. BENOWITZ, DON'T SOME OF THE NICOTINE REPLACEMENTS THAT ARE AVAILABLE ON THE MARKET WARN THEY ARE UNLIKELY TO BE EFFECTIVE UNLESS THE INDIVIDUAL IS MOTIVATED TO STOP SMOKING?

A. PROBABLY. I DON'T RECALL SMOKERS' WARNINGS OFFHAND, BUT IT DOES NOT SURPRISE ME.

Q. LET'S APPROACH MOTIVATION FROM THIS PERSPECTIVE, DOCTOR.

ISN'T IT FAIR TO SAY THAT, FOR THE 50 MILLION AMERICANS WHO HAVE QUIT SMOKING, THAT THERE CAME A TIME IN THEIR LIFE WHERE THEIR DESIRE TO STOP SMOKING WAS GREATER THAN THEIR DESIRE TO CONTINUE TO SMOKING?

A. YES. I TALKED ABOUT THIS BEFORE IN TERMS OF THE MOTIVATIONS ON BOTH SIDES, MOTIVATIONS TO SMOKE AND MOTIVATIONS TO STOP SMOKING.

AND AT SOME POINT IN TIME, MOTIVATIONS TO STOP BECOME MORE POWERFUL, ENOUGH TO CHANGE THE BEHAVIOR.

Q. (WRITING ON BOARD) NOW, IN ADDITION TO MOTIVATION, PERSISTENCE IS ALSO VERY IMPORTANT WITH RESPECT TO ATTEMPTING TO QUIT SMOKING, ISN'T IT, DOCTOR?

A. YES, BECAUSE IT OFTEN TAKES SO MANY ATTEMPTS TO SUCCEED THAT ONE DOES HAVE TO TRY OVER AND OVER AGAIN.

Q. WELL, SOME PEOPLE WERE ABLE TO QUIT SMOKING THE

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FIRST TIME THEY TRIED; CORRECT?

A. SOME LUCKY ONES. MOST, THAT'S NOT THE CASE, BUT SOME PEOPLE, THAT'S TRUE.

Q. SOME PEOPLE TAKE MORE THAN ONE EFFORT BEFORE THEY'RE ABLE TO SUCCESSFULLY QUIT?

A. MOST PEOPLE TAKE MANY MORE THAN ONE EFFORT.

Q. BUT THE FACT THAT A PERSON IS UNSUCCESSFUL THE FIRST, SECOND OR EVEN THIRD TIME THAT THEY ATTEMPT TO QUIT DOESN'T MEAN THEY WON'T BE SUCCESSFUL IF THEY CONTINUE TRYING TO QUIT, DOES IT?

A. THAT'S CORRECT.

Q. IN FACT, WITH EACH ADDITIONAL SERIOUS EFFORT TO QUIT, THE LIKELIHOOD THAT A SMOKER WILL BE ABLE TO QUIT INCREASES, DOESN'T IT?

A. YES.

Q. DR. BENOWITZ, YOU TESTIFIED ON DIRECT EXAMINATION THAT ONLY ABOUT 3 PERCENT OF SMOKERS ARE ABLE TO QUIT EACH YEAR, DIDN'T YOU, SIR?

A. YES.

Q. ISN'T THAT THE PERCENTAGE THAT APPLIES TO SMOKERS WHO MAKE SINGLE OR INDIVIDUAL ATTEMPTS TO QUIT IN A GIVEN YEAR?

A. WELL, THAT'S -- THEY MAKE AT LEAST ONE SERIOUS QUIT ATTEMPT OR MORE. BUT THAT'S THE SAME NUMBER THAT EQUATES TO THE 1.3 MILLION, BECAUSE THERE ARE ABOUT 50 MILLION SMOKERS OR 45 MILLION SMOKERS.

AND 3 PERCENT CAN QUIT PER YEAR. THAT COMES OUT TO ABOUT 1.3 MILLION OR SOMETHING.

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Q. BUT THIS DOES APPLY TO INDIVIDUALS WHO MAKE SINGLE QUIT ATTEMPTS TO QUIT?

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A. THAT'S ALL THE POPULATION. THAT'S WHERE THE NUMBER THAT YOU PUT ON THE BOARD COMES FROM. 3 PERCENT OF 45 MILLION IS 1.3 MILLION.

Q. ISN'T IT CORRECT THAT IF A SMOKER MAKES MULTIPLE QUIT ATTEMPTS, THAT THE LIKELIHOOD OF SUCCESSFULLY QUITTING GOES UP TO AROUND 50 PERCENT?

A. WELL, THAT'S A HARD NUMBER TO COME TO. I HAVE NEVER SEEN THAT NUMBER 50 PERCENT FOR SMOKING CESSATION.

I THINK, CUMULATIVELY, THE NUMBERS DO GO UP OVER TIME, BUT I DON'T RECALL 50 PERCENT BEING CITED AS A LIKELIHOOD OF SUCCESS FOR ANY PARTICULAR QUIT ATTEMPT.

MR. FURR: I'M GOING TO HAND DR. BENOWITZ THE DEPOSITION OF HIS IN THIS CASE, PAGE 144, LINES 12 TO 15.

THE COURT: ARE YOU PROPOSING TO READ THAT?

MR. FURR: YES, YOUR HONOR.

THE COURT: ANY OBJECTION?

MS. CHABER: I NEED TO GET THE COPY, YOUR HONOR.

DO YOU HAVE AN EXTRA ONE?

MR. FURR: I'M SURE.

MS. CHABER: THANK YOU.

WHAT'S THE PAGE?

MR. FURR: PAGE 144, LINES 12 THROUGH 15.

THE COURT: LET ME ASK ALL COUNSEL, WHEN WE HAVE A WITNESS OUT HERE, PLEASE BRING THE DEPOSITION OUT INTO THE COURTROOM SO WE CAN DON'T WASTE TIME OVER THESE

1275

ADMINISTRATIVE MATTERS.

IS THERE ANY OBJECTION TO THAT?

MS. CHABER: THAT'S FINE.

THE COURT: WHAT?

MR. BROWN: NO OBJECTION.

MS. CHABER: NO OBJECTION.

THE COURT: YOU MAY READ.

MR. FURR: Q. DR. BENOWITZ, I TOOK YOUR DEPOSITION IN THIS CASE ON 11-19-99, DIDN'T I, SIR?

A. YES.

Q. JUST A FEW MONTHS AGO.

THAT WAS SWORN TESTIMONY, WASN'T IT, SIR?

A. YES.

Q. LET ME ASK YOU TO LOOK AT PAGE 144, LINES 12 THROUGH 15.

WAS THE QUESTION ASKED: "IF PEOPLE ENGAGE IN MULTIPLE QUIT ATTEMPTS, THE LIKELIHOOD OF SUCCESS GOES UP TO AROUND 50 PERCENT, DOESN'T IT?"

AND THE ANSWER WAS: "YES"?

A. NO. YOUR QUESTION SAYS: "IF PEOPLE ENGAGE IN MULTIPLE QUIT ATTEMPTS, THE LIKELIHOOD OF SUCCESS IS MUCH HIGHER, ISN'T IT?"

AND I SAID: "YES."

THE COURT: HE'S READING FROM LINES 12 TO 15.

MR. FURR: Q. LINES 12 THROUGH 15, SIR.

A. OH, YES.

Q. LET ME ASK YOU AGAIN, DOCTOR, TO BE CLEAR.

THE QUESTION WAS: "IF PEOPLE ENGAGE IN

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MULTIPLE -- MULTIQUIT ATTEMPTS, THEIR LIKELIHOOD OF SUCCESS GOES UP TO AROUND 50 PERCENT, DOESN'T IT?"

AND YOUR ANSWER WAS: "YES"?

A. RIGHT. THAT DOESN'T REFER TO THE SINGLE QUIT ATTEMPT. IF SOMEONE GOES THROUGH MULTIPLE QUIT ATTEMPTS, THE ULTIMATE CHANCE OF THEM QUITTING IS GOING TO BE 50

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PERCENT.
BUT YOU ASKED ME -- HERE TODAY, WHAT YOU ASKED, THE CHANCE OF SUCCEEDING ON THAT QUIT ATTEMPT IF THEY HAVE HAD MULTIPLE ATTEMPTS IS 50 PERCENT.
THAT IS NOT CORRECT.
Q. OKAY. YOU AGREED WITH THE TESTIMONY YOU GAVE IN YOUR DEPOSITION THOUGH, DIDN'T YOU, SIR?
A. BUT YOU MISSTATED IT. WHAT THIS SAYS IS, IF SOMEONE HAS TRIED MULTIPLE TIMES, CUMULATIVELY, THEIR CHANCE OF QUITTING IS ABOUT 50 PERCENT.
THAT'S NOT THE SAME AS WHAT YOU ASKED ME A FEW MINUTE AGO HERE.
Q. LET'S BE CLEAR. IF AN INDIVIDUAL ENGAGES IN MULTIPLE QUIT ATTEMPTS, THEIR LIKELIHOOD OF QUITTING IS ABOUT 50 PERCENT; CORRECT?
A. NO. THIS MIGHT TAKE 10 YEARS. BUT IF THEY TRY OVER AND OVER AND OVER AGAIN, 50 PERCENT OF PEOPLE CAN QUIT, BUT IT MIGHT TAKE THEM 10 YEARS OR 20 YEARS, NOT ONE ATTEMPT.
Q. DR. BENOWITZ, THERE ARE PEOPLE WHO QUIT SMOKING AND DON'T REPORT ANY SIGNS OR SYMPTOMS OF WITHDRAWAL; IS

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THAT CORRECT?
A. YES.
Q. AND IS IT ALSO CORRECT THAT A DAY OR TWO AFTER AN INDIVIDUAL STOPS SMOKING, THAT THERE IS NO NICOTINE LEFT IN THEIR BODY?
A. A FEW DAYS. MOST NICOTINE IS GONE WITHIN A DAY OR TWO.
THERE ARE RESIDUALS WHICH CAN PERSIST FOR SEVERAL DAYS, BUT MOST IS GONE WITHIN A DAY OR TWO.
Q. ISN'T IT TRUE THAT MOST OF THE PHYSICAL WITHDRAWAL SYMPTOMS THAT SMOKERS EXPERIENCE WHEN THEY STOP SMOKING PEAK IN ABOUT ONE TO TWO DAYS?
A. IT VARIES FROM PERSON TO PERSON, BUT CERTAINLY WITHIN THE FIRST WEEK.
Q. AND MOST OF THOSE PHYSICAL WITHDRAWAL SYMPTOMS DECREASE VERY RAPIDLY AFTER THE FIRST WEEK, DON'T THEY, DOCTOR?
A. RIGHT. THE ONE EXCEPTION IS THE ONE THAT I TALKED ABOUT IN MY DIRECT TESTIMONY, WHICH IS THIS DYSPHORIA AND MOOD DISTURBANCE, WHICH CAN PERSIST FOR A VERY LONG TIME.
Q. LET'S TALK ABOUT DYSPHORIA.
ISN'T IT ALSO CORRECT THAT, EVEN IN FORMER SMOKERS WHO EXPERIENCE DYSPHORIA, THAT IF THEY PERSIST IN NOT SMOKING AND STICK IT OUT, THAT EVENTUALLY THEY WILL GET PAST THE DYSPHORIA AND THEY WILL RETURN TO THEIR EMOTIONAL BASELINE?
A. YES.

1278

Q. IN FACT, ISN'T IT CORRECT THAT SMOKERS AND PEOPLE ATTEMPTING TO QUIT SMOKING SHOULD BE COUNSELED THAT THE ADVERSE PSYCHOLOGICAL EFFECTS OF QUITTING SMOKING DECREASE RAPIDLY OVER TIME?
A. WELL, COUNSELED IN TWO WAYS. THEY ARE COUNSELED THAT THE SYMPTOMS DECREASE RAPIDLY OVER TIME, BUT THEY ALSO MUST BE VIGILANT FOR THOSE FEELINGS AND SENSATIONS AND MOODS THAT CONTRIBUTE TO RELAPSE THAT CAN OCCUR FOR MANY MONTHS; BOTH THINGS.
YOU REASSURE PEOPLE THAT THEY'RE GOING TO FEEL BETTER. YOU ALSO PREPARE THEM FOR THE THINGS THAT TRIGGER SMOKING AGAIN.

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Q. DR. BENOWITZ, YOU TESTIFIED ON DIRECT THAT SMOKERS WON'T SMOKE A CIGARETTE WITHOUT NICOTINE, DIDN'T YOU?
A. YES.
Q. AND I BELIEVE -- ISN'T IT TRUE THAT NICOTINE AFFECTS THE WAY A CIGARETTE TASTES?
A. YES.
Q. ISN'T IT ALSO TRUE THAT NICOTINE AFFECTS THE WAY SMOKE FEELS IN A SMOKER'S MOUTH?
A. YES.
Q. IS THAT THE PHENOMENON THAT YOU REFERRED TO TODAY AS IMPACT?
A. YES.
Q. NOW, BOTH THE WAY A CIGARETTE TASTES AND THE WAY THAT IT FEELS IN A SMOKER'S MOUTH ARE IMPORTANT TO CONSUMER ACCEPTANCE OF DIFFERENT CIGARETTE PRODUCTS; CORRECT?

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A. YES. ALTHOUGH A LOT OF THOSE BECOME CONDITIONED OVER TIME. PEOPLE GET USED TO A PRODUCT AND THEY COME TO LIKE IT.
BUT ONCE SOMEONE LIKES A PARTICULAR CIGARETTE, THEN THE NICOTINE IMPACT BECOMES VERY IMPORTANT FOR THEM IN TERMS OF WHAT THEY LIKE TO SMOKE.
Q. LET ME BACK UP A LITTLE BIT, DOCTOR. JUST A FEW GENERAL QUESTIONS ABOUT NICOTINE.
NOW, NICOTINE OCCURS NATURALLY IN THE TOBACCO PLANT AS IT GROWS IN THE FIELD, DOESN'T IT, SIR?
A. YES.
Q. AND THE FACT THAT TOBACCO CONTAINS NICOTINE IS SOMETHING THAT SCIENCE AND MEDICINE HAVE KNOWN FOR AT LEAST A COUPLE OF HUNDRED YEARS; CORRECT, SIR?
A. YES.
Q. NICOTINE HAS BEEN EXTENSIVELY STUDIED AND REPORTED ON BY SCIENTISTS OUTSIDE THE TOBACCO INDUSTRY SINCE EARLY IN THE LAST CENTURY; CORRECT, DOCTOR?
A. YES.
Q. WASN'T IT KNOWN AS EARLY AS THE 1800S THAT NICOTINE HAD PHARMACOLOGIC PROPERTIES?
A. YES.
Q. AND THERE HAS BEEN AN UNDERSTANDING THAT SMOKING IS DIFFICULT TO QUIT FOR SOME PEOPLE SINCE EARLY IN THE LAST CENTURY ALSO, HASN'T THERE, DOCTOR?
A. YES.
Q. DR. BENOWITZ, YOU TESTIFIED TODAY ON DIRECT EXAMINATION THAT YOU BELIEVE NOW THAT MOST PEOPLE UNDERSTAND

1280

WHAT THE TERM "ADDICTION" MEANS WITH RESPECT TO CIGARETTES, DIDN'T YOU?
A. YES.
Q. NOW, ISN'T IT ALSO FAIR TO SAY, DOCTOR, THAT REASONABLE PEOPLE CAN HAVE DISAGREEMENTS AS TO WHETHER NICOTINE IS THE PROPER TERM TO CHARACTERIZE SMOKING IN THE 1988 SURGEON GENERAL'S REPORT?
THE COURT: YOU SAID "NICOTINE."
MR. FURR: I'M SORRY.
THE COURT: I THINK YOU MISSPOKE.
MR. FURR: I MUST HAVE MISSPOKE.
Q. ISN'T IT ALSO FAIR, DOCTOR, THAT REASONABLE PEOPLE CAN HAVE DIFFERENCES OF OPINION AS TO WHETHER OR NOT "ADDICTION" WAS THE PROPER TERM TO CHARACTERIZE SMOKING IN THE 1988 SURGEON GENERAL'S REPORT?
MS. CHABER: VAGUE AND AMBIGUOUS AS TO "REASONABLE PEOPLE."

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THE WITNESS: ARE YOU SAYING --
THE COURT: HOLD ON. YOU ARE TALKING ABOUT REASONABLE PEOPLE AT WHAT LEVEL?
MR. FURR: I'LL RESTATE THE QUESTION.
THE COURT: WHAT?
MR. FURR: I WILL RESTATE THE QUESTION.
Q. DOCTOR, YOU WOULD AGREE THAT THERE HAS BEEN SOME DEBATE IN THE SCIENTIFIC COMMUNITY ABOUT THE BEST TERM TO BE USED TO DESCRIBE SMOKING BEHAVIOR, WOULDN'T YOU, SIR?
A. YES.
Q. NOW, THE DEBATE HAS NOT BEEN ABOUT THE DATA AND

1281

WHAT ABOUT SMOKING BEHAVIOR IS, BUT INSTEAD HOW TO DESCRIBE THAT SMOKING BEHAVIOR; CORRECT?
A. THERE'S BEEN SOME DEBATE ABOUT THAT, YES.
Q. NOW, DR. BENOWITZ, AS YOU'VE TOLD US, YOU WERE ONE OF THE SENIOR EDITORS OF THE 1988 SURGEON GENERAL'S REPORT, WEREN'T YOU?
A. YES.
Q. NOW, BUT ISN'T IT TRUE, DR. BENOWITZ, THAT EVEN AFTER PUBLICATION OF THE 1988 SURGEON GENERAL'S REPORT, YOU TESTIFIED THAT YOU WOULD STAY AWAY FROM USING THE TERM "ADDICTION" IN FRONT OF JURIES BECAUSE IT'S SUCH A LOADED TERM?
A. I DID SAY THAT. BUT I THINK IT'S ACTUALLY CHANGED SINCE I TESTIFIED IN THAT WAY.
I THINK PEOPLE UNDERSTAND IT MUCH CLEARER NOW THAN THEY DID IMMEDIATELY AFTER THE SURGEON GENERAL'S REPORT WAS RELEASED.
Q. ISN'T IT A FACT, DR. BENOWITZ, THAT YOU TESTIFIED IN THE PAST THAT YOU WOULD AVOID USING THE TERM "ADDICTION" IN FRONT OF JURORS BECAUSE IT'S SUCH A LOADED TERM AND BECAUSE OF THE CONFUSION THAT MIGHT ARISE AMONG JURORS?
A. YES, BUT I THINK IT'S CLEARER NOW.
Q. NOT TO BELABOR THIS POINT, DOCTOR, BUT WHETHER YOU CALL SMOKING AN ADDICTION OR A HABITUATION OR A DEPENDENCY, IT DOESN'T MEAN THAT PEOPLE CAN'T AND DON'T QUIT, DOES IT, SIR?
A. THAT'S CORRECT.
Q. DR. BENOWITZ, LET'S TALK A LITTLE MORE NOW ABOUT

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MRS. WHITELEY.
NICOTINE DID NOT HAVE ANYTHING TO DO WITH MRS. WHITELEY'S DECISION TO BEGIN SMOKING, DID IT, SIR?
A. CORRECT.
Q. NICOTINE DID NOT HAVE ANYTHING TO DO WITH THE BRAND OF CIGARETTE THAT SHE SMOKED DURING HER LIFE, DID IT, SIR?
A. I DOUBT IT.
Q. NOW, I HEARD YOU TESTIFY TODAY THAT SOME SMOKERS CHANGE TO LOWER TAR AND NICOTINE BRANDS BECAUSE OF THEIR PERCEPTION THAT THOSE BRANDS ARE SAFER, DIDN'T YOU, SIR?
A. YES.
Q. THAT'S NOT WHY MRS. WHITELEY CHANGED OVER TO LOWER TAR AND NICOTINE BRANDS, IS IT, SIR?
A. NOT TO MY KNOWLEDGE.
Q. SHE CHANGED TO LOWER TAR AND NICOTINE BRANDS BECAUSE SOMEONE OFFERED HER ONE AND SHE LIKED THE WAY IT TASTED, DIDN'T SHE, SIR?
A. I DON'T RECALL EXACTLY, BUT THAT COULD BE.
Q. YOU READ HER DEPOSITION IN THIS CASE, DIDN'T YOU?
A. YES.
Q. ALTHOUGH, AS I RECALL, YOU DIDN'T READ HER WHOLE

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DEPOSITION. INSTEAD, YOU LOOKED AT THE INDEX AND TRIED TO ACCESS THOSE PARTS OF THE DEPOSITION THAT YOU THOUGHT WOULD BE MOST RELEVANT TO YOUR OPINIONS; IS THAT CORRECT?

A. YES. I READ EVERYTHING THAT HAD DO WITH HER SMOKING BEHAVIOR.

Q. NOW, DR. BENOWITZ --

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A. OR HER DRUG USE BEHAVIOR.

Q. MRS. WHITELEY WAS REALLY A VERY AVERAGE SMOKER, AT LEAST IN THE TERMS OF THE NUMBER OF CIGARETTES THAT SHE SMOKED PER DAY, WASN'T SHE, SIR?

A. WHEN?

Q. DURING THE COURSE OF BETWEEN 1972 AND 1998, WHEN SHE QUIT SMOKING.

A. YES. MAYBE A LITTLE MORE.

I THINK THE AVERAGE CONSUMPTION IN THE '90S WAS ABOUT 17 CIGARETTES, ABOUT THAT, HIGHER THAN THAT EARLY ON. SHE WAS NOT FAR FROM THE AVERAGE.

Q. IF YOU AVERAGE HER SMOKING OVER BETWEEN 1972 AND 1998, YOU BELIEVE THAT SHE SMOKED ABOUT 17 CIGARETTES PER DAY; CORRECT, SIR?

A. I'M NOT SURE. SUPPOSEDLY, SHE SMOKED BETWEEN A PACK AND A PACK AND A HALF A DAY EXCEPT IN THE VERY BEGINNING.

I DON'T RECALL HOW LONG IT WAS THAT SHE SMOKED FEWER CIGARETTES. IT COULD BE 17. IT COULD BE 20. I'M NOT SURE EXACTLY.

MR. FURR: I INTEND TO READ PAGE 51 OF HIS DEPOSITION, LINES 14 THROUGH 21.

MS. CHABER: THAT'S FINE. NO OBJECTION.

MR. FURR: Q. DR. BENOWITZ, IF YOU LOOK AT PAGE 51, SIR, IS IT CORRECT THAT THE QUESTION WAS ASKED:

"WELL, SHE SMOKED ABOUT 17 OR 18 CIGARETTES A DAY, IS THAT CORRECT, SIR, FOR MOST OF HER SMOKING CAREER?"

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AND YOUR ANSWER WAS: "ON AVERAGE, ALTHOUGH FROM ABOUT THE 1980S ON, SHE WAS SMOKING PACK, PACK AND HALF PER DAY. SO DEPENDS ON HOW YOU AVERAGE IT OUT. FOR HER WHOLE CAREER THAT'S PROBABLY RIGHT, BUT SHE DID SMOKE MORE TOWARD THE END THAN THE BEGINNING."

IS THAT YOUR ANSWER, SIR?

A. YES.

Q. I'M GOING TO ASK YOU SOME QUESTIONS LATER ABOUT HOW HEAVILY MRS. WHITELEY SMOKED IN THE LAST DECADE OR SO WHILE SHE WAS SMOKING.

BUT ISN'T IT CORRECT, SIR, THAT CURRENTLY, THE AVERAGE NUMBER OF CIGARETTES SMOKED BY AN INDIVIDUAL IN THE UNITED STATES IS AROUND 18 OR 19 CIGARETTES A DAY?

A. YES.

Q. SO LARGELY, FOR MOST OF HER SMOKING HISTORY, ON AVERAGE, MRS. WHITELEY SMOKED ABOUT THE AVERAGE NUMBER OF CIGARETTES THAT A SMOKER SMOKES IN THE UNITED STATES; CORRECT?

A. YES.

Q. DR. BENOWITZ, YOU TALKED ABOUT SERIOUS QUIT ATTEMPTS DURING YOUR DIRECT EXAMINATION (WRITING ON BOARD).

THAT'S CORRECT, SIR?

A. YES.

Q. SCIENTISTS WHO STUDY SMOKING CESSATION DEFINE A SERIOUS QUIT ATTEMPT AS QUITTING SMOKING FOR 24 HOURS; IS THAT CORRECT?

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A. YES. THAT'S THE WAY THE CDC HAS DEFINED IT FOR THEIR STUDIES, YES.

Q. NOW, BETWEEN 1972 AND 1988 (WRITING ON BOARD), MRS. WHITELEY MADE ZERO SERIOUS QUIT ATTEMPTS; IS THAT CORRECT, SIR?

A. I GUESS. I JUST DON'T REMEMBER OFFHAND. ALTHOUGH I DON'T DOUBT THAT.

I DON'T REMEMBER THE DATE OF HER FIRST QUIT ATTEMPT.

Q. WASN'T IT IN 1989, SIR?

A. YES, IT WAS; THAT'S CORRECT.

Q. SO IN 1989, SHE MADE ONE SERIOUS QUIT ATTEMPT;, CORRECT, SIR?

A. YES.

Q. BETWEEN 1990 AND 1997, SHE MADE ZERO SERIOUS QUIT ATTEMPTS, DIDN'T SHE, SIR?

A. YES.

Q. AND THEN IN 1998, SHE MADE ONE SERIOUS QUIT ATTEMPT, AND SHE WAS SUCCESSFUL; IS THAT CORRECT?

A. YES.

Q. LET ME TALK TO YOU A LITTLE MORE, DR. BENOWITZ, ABOUT THIS SERIOUS QUIT ATTEMPT IN 1989.

YOU TESTIFIED A LITTLE BIT ABOUT WHEN MRS. WHITELEY AND HER HUSBAND WERE GOING ON A VACATION AND BOTH OF THEM ATTEMPTING TO QUIT.

DO YOU RECALL THAT TESTIMONY, SIR?

A. THAT'S CORRECT.

Q. AND YOU READ -- NOT ONLY DID YOU READ MRS. WHITELEY'S DEPOSITION, YOU DID READ THE DEPOSITION OF HER HUSBAND IN THIS CASE, DIDN'T YOU, SIR?

A. YES.

Q. AND YOU READ THE DEPOSITION OF SOME FAMILY MEMBERS ALSO, DIDN'T YOU, SIR?

A. YES.

Q. ISN'T IT CORRECT THAT, ON THE SERIOUS QUIT ATTEMPT IN 1989, THAT IN FACT IT WAS HER HUSBAND'S IDEA TO ATTEMPT TO QUIT SMOKING?

A. WELL, I THINK THERE WAS ALSO AN ELEMENT ABOUT HER BEING CONCERNED ABOUT SMOKING AROUND THE CHILDREN AS WELL. SO I THINK IT WAS HER HUSBAND'S IDEA, BUT SHE THOUGHT IT WAS A GOOD IDEA AS WELL.

Q. DR. BENOWITZ, ISN'T IT CORRECT THAT IN 1989, LEONARD WHITELEY, MRS. WHITELEY'S HUSBAND, DEVELOPED A COUGH THAT HE WAS ADVISED MIGHT BE DUE TO HIS CIGARETTE SMOKING?

A. I BELIEVE THAT'S CORRECT.

Q. AND HE DECIDED THAT BECAUSE OF THAT ADVICE FROM HIS PHYSICIAN, THAT HE WANTED TO QUIT SMOKING; CORRECT, SIR?

A. YES.

Q. AND HE ASKED HIS WIFE TO QUIT SMOKING ALSO; CORRECT?

A. YES.

Q. AND SHE WENT ALONG WITH HER HUSBAND IN AN ATTEMPT TO BE A SUPPORTIVE WIFE IN HIS EFFORT TO QUIT SMOKING; CORRECT, SIR?

A. YES.

MR. FURR: YOUR HONOR IT'S 10 TO 5:00. THIS IS CONVENIENT FOR ME, IF IT'S CONVENIENT FOR THE COURT.

THE COURT: OKAY. IT'S A GOOD TIME.

JURORS, I DO HAVE ANOTHER MATTER -- FIRST OF ALL, OVER THE EVENING, DON'T DISCUSS THIS CASE WITH ANYONE OR LET

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ANYONE DISCUSS IT WITH YOU. PLEASE DON'T FORM OR EXPRESS ANY OPINIONS ABOUT THE CASE.

I DO HAVE ANOTHER MATTER TOMORROW MORNING, SO I AM GOING TO ASK YOU TO START AT 10:00 O'CLOCK. SO YOU CAN GET A LITTLE EXTRA SLEEP TONIGHT, BUT I WOULD LIKE TO START PROMPTLY AT 10:00.

SO HAVE A GOOD EVENING, AND WE'LL SEE YOU TOMORROW AT 10:00 PROMPTLY.

(THE PROCEEDINGS ADJOURNED AT 4:50 P.M.)

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